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A virtual faculty exchange program enhances dermatology resident education in the COVID-19 era: a survey study

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Abstract

One of the many consequences of the COVID-19 pandemic was the cancellation of the 2020 American Academy of Dermatology Annual Meeting. This conference historically features lectures from world-renowned experts in all areas of dermatology, thus providing an important educational experience for dermatology residents. We hypothesized that the cancellation of this meeting produced a substantial educational loss for dermatology residents. To mitigate this impact, we developed a virtual faculty exchange program and surveyed dermatology residents' perspectives on its implementation. All participating residents found the virtual faculty exchange useful and would recommend it to other residents/programs. Moreover, all residents wanted to participate in more faculty exchange sessions as well as incorporate them throughout the academic year. Additionally, this educational program eliminated the potential cost of >\$15,000 in flights and >24 metric tons of carbon emissions. This virtual faculty exchange program is a viable tool to enhance dermatology resident education in the COVID-19 era.

Keywords: dermatology resident education, medical education, faculty exchange, virtual learning, COVID-19

Introduction

Coronavirus Disease 2019 (COVID-19), caused by novel severe acute respiratory syndrome coronavirus

2 (SARS-CoV-2), has reached pandemic status. As of March 8, 2021, there have been over 28 million cases and 523,850 deaths attributed to COVID-19 in the United States [1]. One result of this pandemic was the cancellation of the 2020 American Academy of Dermatology Annual Meeting [2]. This conference historically provides a substantial educational experience for dermatology residents. We hypothesized that this meeting's cancellation caused a major educational loss for dermatology residents. To help lessen this loss, we developed a virtual faculty exchange program and surveyed participating dermatology residents' experiences.

Faculty from several dermatology programs across the country (see Author Affiliations) developed a virtual exchange program, wherein multiple faculty at one program provided annual meeting-style lectures to another program's residents via videoconferencing. Lectures ranged from 20-60 minutes in length, and featured expert speakers covering various dermatologic topics (e.g. pediatric dermatology, dermatopathology, procedural and cosmetic dermatology, and complex medical dermatology). These lectures occurred as a 1:1 switch between programs and were conducted over a half-day because this format aligned best with the programs' resident-didactics schedules. To obtain feedback, an anonymous electronic survey was designed using SurveyMonkey ([Supplemental information](#)). The survey was distributed to each program's residents via email following completion

Table 1. Results of dermatology resident survey (N=54).

Survey Item	% of Respondents
Attended the AAD Annual Meeting in the past	67
Experienced an educational/mentorship loss from not having the 2020 AAD annual meeting	100
Believe the faculty exchange was useful	100
Likely to recommend this type of faculty exchange to other residents/residency programs	100
Want to participate in another faculty exchange	100
Interested in having faculty exchanges throughout the academic year (i.e. after resolution of the COVID-19 pandemic)	100
Prefer lectures with an audience-response system*	61

*Lectures with an audience-response system were defined as those incorporating chat functionality, PollEverywhere, and/or Kahoot!

of their first faculty exchange. We collected the responses over a three-week period in April 2020, at which point data were analyzed. Institutional review board (IRB) review was not needed as per the UCI IRB.

We received responses from 54 of 77 dermatology residents (70% response rate), which are presented in **Table 1**. Approximately 67% of dermatology residents had attended the AAD Annual Meeting in

Table 2. Estimated travel costs and carbon-footprint saved.

Faculty	Origin	Dest	Number of Faculty	Cost Per Faculty Per Round Trip (\$)	Carbon Footprint Per Faculty Per Round Trip (Kg)	Total Cost (\$)	Total Carbon Footprint (Kg)
OSU	CMH	PDX	6	222	587.4	1332	3524.4
OSU	CMH	RDU	6	237	212.3	1422	1273.8
OSU	CMH	TPA	4	203	270.1	812	1080.4
OSU	CMH	SNA	6	276	557.8	1656	3346.8
OSU	CMH	SLC	6	237	481.6	1422	2889.6
Utah	SLC	SNA	3	257	237.3	771	711.9
Utah	SLC	CMH	3	264	481.6	792	1444.8
UCI	SNA	CMH	2	276	557.8	552	1115.6
UCI	SNA	PDX	2	157	247.5	314	495.0
UCI	SNA	SLC	2	239	237.3	478	474.6
Duke	RDU	SNA	4	296	573.0	1184	2292.0
Duke	RDU	CMH	6	237	203.4	1422	1220.4
Duke	RDU	TPA	3	163	260.3	489	780.9
USF	TPA	CMH	3	206	270.1	618	810.3
USF	TPA	RDU	3	163	260.3	489	780.9
Oregon	PDX	CMH	3	301	587.4	903	1762.2
Oregon	PDX	SNA	3	157	247.5	471	742.5
		Total	65	3891	6272.7	15127	24746.1
		Mean	3.8	228.9	369.0	889.8	1455.6
		SD	1.6	47.9	156.7	428.3	978.7

OSU, Ohio State University; UCI, University of California Irvine; USF, University of South Florida. Dest, destination, followed by standard airport codes closest to the university. SD, standard deviation.

the past and 100% of residents projected an educational/mentorship loss from the cancellation of the 2020 meeting (**Table 1**). All the residents found the virtual faculty exchange useful and would recommend it to other residents/programs (**Table 1**). Audience response systems, designed to increase resident engagement, were preferred by 61% of residents (**Table 1**). Moreover, all the residents wanted to participate in another faculty exchange session as well as incorporate the exchanges throughout the academic year (i.e. after resolution of the COVID-19 pandemic). Additionally, this educational program eliminated the potential cost of >\$15,000 in flights and >24 metric tons of carbon emissions (**Table 2**).

Discussion

The results of this survey have several important implications. Firstly, all residents projected an educational/mentorship loss from the cancellation of the 2020 AAD Annual Meeting, indicating a high level of need for teaching content during this difficult time. This virtual faculty exchange program helps to fill that need, as all residents found it useful and want to participate in more, even after the end of the COVID-19 pandemic. Secondly, the fact that the majority of residents preferred lectures with an audience-response system is in keeping with

previous studies showing active learning enhances self-reported engagement and satisfaction in medical education [3,4]. This information suggests that faculty should adapt lectures to incorporate active-learning mechanisms in order to increase learners' electronic engagement. Lastly, traditional in-person faculty exchanges (e.g. large conferences, invited guest lecturers) have many clear benefits but are predicated on speakers and attendees traveling to specific geographic locations. This virtual faculty exchange program, if continued in the future, has the potential to reduce both travel costs and carbon emissions, which is an added advantage.

Conclusion

In summary, this virtual faculty exchange program is a viable tool to enhance dermatology resident education in the COVID-19 era. Future qualitative studies will be important to better characterize the effects of this program and to identify strategies for further improvement. The authors encourage faculty and residents from other dermatology departments to contact us if they are interested in participating.

Potential conflicts of interest

The authors declare no conflicts of interest.

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Supplemental information.

Survey of dermatology residents' perspectives on the Virtual Faculty Exchange Program

Have you attended the AAD Annual Meeting in the past?

Yes
No

What is your educational/mentorship loss from not having the Annual Meeting this year?

A great deal
A lot
A moderate amount
A little
None at all

How useful was the faculty exchange?

Extremely useful
Very useful
Somewhat useful
Not so useful
Not at all useful

How likely are you to recommend this type of faculty exchange to other residents/residency programs?

Very likely
Likely
Neutral
Unlikely
Very unlikely

Do you want to participate in another faculty exchange?

Yes
No

How interested are you in having these types of faculty exchanges throughout the academic year (i.e. after resolution of the COVID-19 pandemic)?

Extremely interested
Very interested
Somewhat interested
Not so interested
Not at all interested

How do lectures with an audience response system (e.g. PollEverywhere, Kahoot!, etc) compare to those without?

Much better
Better
About the same
Worse
Much worse

Which lectures did you find most valuable?

Free text response

Do you have other suggestions to improve the faculty exchange format?

Free text response