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Online dermatology curriculum experiences among US dermatology residents and faculty

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Abstract Many dermatology residency programs adapted to the COVID-19 pandemic by transitioning to online teaching methods. This may impact the quality of education and the satisfaction of residents. Dermatology faculty and residents nationwide were surveyed regarding their experiences with the novel online curricula. A total of 65 individuals representing at least 20 ACGME-accredited dermatology programs responded. Many programs implemented a predominantly online curriculum (78%). Most participants reported that both clinical dermatology and dermatopathology were online during the pandemic's peak (90%). Among those who had experienced a live curriculum prior to the pandemic, 49% reported that a virtual curriculum had similar effectiveness, whereas 36% deemed it less effective. Open-ended questions suggested that disadvantages of a virtual curricula included too many distractions, lack of human features, and less spontaneous feedback. They also suggested advantages to an online curriculum included flexibility and more opportunities to hear from guest speakers. Dissatisfaction before the curriculum change was the same as after (7%), suggesting that the educational experience was not worsened. Failing to adjust the curriculum to residents' needs can contribute to lower satisfaction and inadequate education. The variation of responses signifies the importance of seeking sufficient feedback from residents to meet their educational needs.

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The COVID-19 pandemic has created an unprecedented time in medical education. Many residency programs transitioned from in-person lectures and skills sessions to online didactics, virtual simulations, and some teledermatology.¹⁻³ The American Academy of Dermatology summarized pandemic-specific challenges in residency education and suggested tools for education modification.⁴ Given the variety of online learning methods, understanding factors as-

sociated with adequate education and resident satisfaction is important as programs adapt to novel learning environments.⁵

Methods

An electronic Qualtrics survey was distributed from January to April 2021 addressing experiences with online dermatology curricula to the Association of Professors of Dermatology listserv and program coordinators for the 2020-2021 academic year. Study participation was voluntary, and

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To what extent do you feel your education in non-procedural dermatology has been limited by the COVID-19 pandemic?

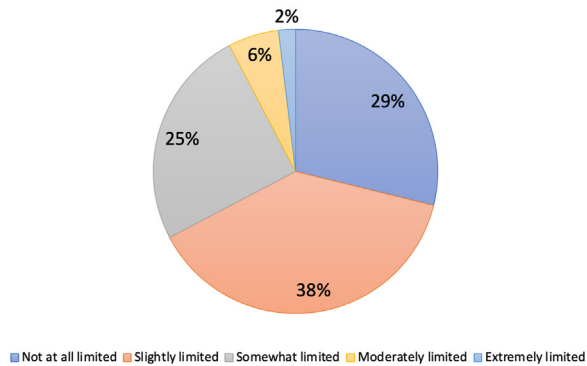


Fig. 1 Survey results from respondents concerning the extent to which education in nonprocedural dermatology has been limited by the COVID-19 pandemic.

To what extent do you feel your education in dermatopathology has been limited by the COVID-19 pandemic?

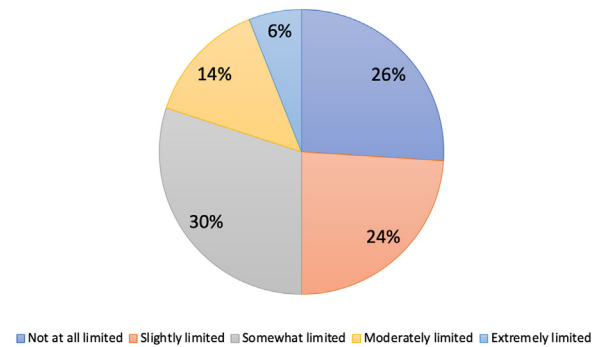


Fig. 2 Survey results from respondents concerning the extent to which education in dermatopathology has been limited by the COVID-19 pandemic.

informed consent was obtained. Institutional review board approval was obtained through the institutional review board of the University of Texas Health Science Center Houston. Survey results were analyzed using Microsoft Excel.

Results

Sixty-five individuals responded, including 21 faculty members and 44 residents from at least 20 ACGME-accredited dermatology residency programs (some respondents kept their program anonymous). Most of the represented programs implemented virtual, online curricula in March of 2020 (Table 1). Fifty-one (78%) respondents reported that 75% to 100% of their curriculum was virtual by January of 2021. Zoom was the most common platform used by 43 respondents (65%). Ninety percent of participants reported both clinical dermatology and dermatopathology were online during the initial peak of the pandemic.

Twelve (20%) participants reported they always had their personal video feed on during virtual learning, whereas 20 (33%) reported they rarely did. Thirty-five (67%) respondents said that their education in nonprocedural dermatology was not limited or only slightly limited by the COVID-19 pandemic (Figure 1). Seven (16%) participants said online education was more effective. Thirty-eight (74%) respondents said that their education in dermoscopy and 25 (50%) respondents believed that their education in dermatopathology was not limited or only slightly limited by the COVID-19 pandemic (Figures 2 and 3). Open-ended responses on advantages to the online learning included flexibility with driving to distant clinical sites and opportunities to hear from speakers outside of their local program. Twenty-two (49%) of faculty members and PGY3+ residents who had experienced live curriculum before the pandemic reported that the virtual curriculum had a similar level of effec-

To what extent do you feel your education in dermoscopy has been limited by the COVID-19 pandemic?

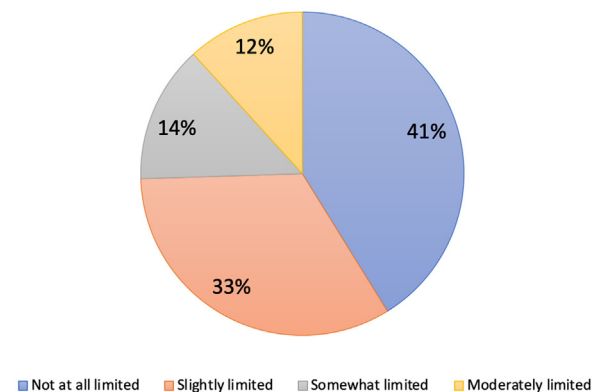


Fig. 3 Survey results from respondents concerning the extent to which education in dermoscopy has been limited by the COVID-19 pandemic.

tiveness, whereas 16 (36%) reported it to be less effective (Supplemental Table 1). Open-ended responses as to why the pandemic curriculum was less effective included themes of “too many distractions,” “lack of human feature,” and “less spontaneous feedback.” Twenty-four of 29 (83%) PGY-3 residents and above were either satisfied or very satisfied with the curriculum prior to the pandemic, whereas 31 of 41 (76%) were satisfied or very satisfied with curriculum after pandemic-related changes. Seven of 41 (17%) were neutral about the virtual curriculum, and three (7%) were dissatisfied. Thirty-two (49%) residents reported difficulty staying engaged as the greatest educational challenges attributed to the pandemic. When asked what pandemic-related educational changes participants would like to sustain, responses ranged from making virtual attendance optional, continuing online learning only, offering a combination of virtual and in-person didactics, and increasing guest lectures.

Table 1 Characteristics of online dermatology curriculum

	Number of respondents	Percentage of respondents
<i>Role in program or year in training</i>		
PGY2	20	31%
PGY3	11	17%
PGY4	12	18%
PGY5	1	2%
Program director, associate program director, or other faculty associate	21	32%
<i>Number of residents in program</i>		
1-6	7	11%
7-9	9	14%
10-12	16	25%
13+	33	51%
<i>Percentage of curriculum that was virtual by January 2021</i>		
1%-24% is virtual	5	8%
25%-49% is virtual	1	2%
50%-74% is virtual	6	9%
75%-100% is virtual	51	78%
We previously had virtual curriculum, but have transitioned back to 100% in-person didactics	2	3%
<i>Components of curriculum that were virtual during peak of pandemic</i>		
Both clinical dermatology and dermatopathology	55	90%
Clinical dermatology only	3	5%
None	3	5%
<i>Modality primarily used for lectures</i>		
Microsoft 365	7	11%
Other	2	3%
Webex	13	20%
Microsoft Teams	1	2%
Zoom	43	65%
<i>Frequency of personal video feed on during virtual learning</i>		
Never	6	10%
Rarely	20	33%
Sometimes	11	18%
Often	12	20%
Always	12	20%
<i>Of the in-person didactics, what percentage is led by the residents versus faculty or outside attendings?</i>		
0% resident-led	4	7%
100% resident-led	1	2%
1%-24% resident-led	11	19%
25%-49% resident-led	8	14%
50%-74% resident-led	25	43%
75%-99% resident-led	9	16%
<i>Of the virtual didactics, what percentage is led by the residents versus faculty or outside attendings?</i>		
0% resident-led	1	2%
1%-25% resident-led	14	23%
25%-49% resident-led	11	18%
50%-74% resident-led	26	43%
75%-99% resident-led	8	13%
<i>Strategies during virtual learning</i>		
Call on individuals to answer questions	49	75%
Poll everywhere or other form of question/answer collector	27	42%
Other	14	22%
<i>Timing or format of the majority of the lectures?</i>		
All online lectures are live	44	73%

(continued on next page)

Table 1 (continued)

	Number of respondents	Percentage of respondents
The majority of lectures are live, with recordings available for asynchronous viewing	15	25%
The majority of lectures are live, with some that are pre-recorded from previous years	1	2%
<i>For faculty and/or PGY3 residents and above, how does the curriculum during COVID-19 compare to the prior curriculum?</i>		
Less effective	16	36%
More effective	7	16%
Similar level of effectiveness	22	49%
<i>Self-directed learning resources (multiple choices allowed)</i>		
American Academy of Dermatology online modules	19	43%
Dermatology In-Review	28	64%
Board Vitals	16	36%
Primer in Dermatologic Surgery: A Study Companion	13	30%
Dermoscopy: An Illustrated Self-Assessment Guide	6	14%
DERMatology Early Melanoma Detection (MD Anderson Cancer Center) Dermoscopy Curriculum	12	27%
Other	10	23%
<i>Dermatopathology educational resources</i>		
PathPresenter	37	84%
DermpathPRO	1	2%
MyDermPath + App	5	11%
McKee Spot Diagnosis	0	0%
YouTube channels	13	30%
Social media accounts (eg, Instagram, Facebook)	4	9%

Discussion

One limitation to this study is the sample convenience survey design, making the results less generalizable. A strength of this survey is the open-ended feedback from participants. Interestingly, the level of dissatisfaction before the curriculum change was consistent with the level after (7%), suggesting that the educational experience was not worsened. Regarding why 76% of responders thought the virtual didactics were satisfactory or very satisfactory when 49% reported difficulty staying engaged, we hypothesize that despite people having difficult staying engaged, other benefits (flexibility, ability to record lectures, less commuting, etc) of virtual education outweighed the cons. Outside of didactic training, decreased procedures were a large challenge secondary to the pandemic for 26 (40%) of respondents (Supplemental Figure 1).

Conclusions

Overall, there is wide variation in responses to experiences with online dermatology curriculum. Programs may benefit from seeking detailed feedback from their residents to meet the unique individual learner needs and preferences.

Supplementary materials

Supplementary material associated with this contribution may be found, in the online version, at doi:[10.1016/j.clindermatol.2022.08.002](https://doi.org/10.1016/j.clindermatol.2022.08.002).

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