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## Expanding teledermatology educational opportunities after the COVID-19 pandemic



*To the Editor:* According to a recent survey by the American Academy of Dermatology, dermatologists believe that the increased use of teledermatology will persist even after COVID-19.<sup>1</sup> Moreover, teledermatology has been successfully implemented not only in outpatient settings but also for inpatient services.<sup>2</sup> We read with interest the study by Gabel et al<sup>2</sup> and support the implementation of teledermatology in inpatient settings for making decisions about the diagnosis, evaluation, and management of dermatologic conditions. These findings build upon previous work that demonstrated both agreement and improvement in the time to response and average handling of inpatient dermatology cases using telemedicine.<sup>3</sup> According to a survey, 34 of 72 dermatology residency respondents indicated that they used telemedicine as a part of their curriculum. Only 12 of 57 programs offered telemedicine education to medical students. Importantly, 39 of the 57 programs said that they would be interested in incorporating more telemedicine into their curriculum.<sup>4</sup> Moreover, the increased use of teledermatology may continue post-pandemic, given its resource efficiency and improvement in enabling access to care in underserved areas.<sup>1</sup> Given teledermatology's expanding role in clinical care, we believe that it is important to include telemedicine in medical school and residency curricula to ensure that its increase in use is appropriate and high-quality.

What would an expanded teledermatology curriculum look like? First, teledermatology in practice can be directly incorporated into medical student and resident patient care as well as workflows. For instance, using store-and-forward teledermatology, medical students and residents can review clinical images and propose differential diagnoses and treatment suggestions, which can then be screened and adjusted as necessary by a faculty preceptor.<sup>5</sup> In this way, trainees would learn not only proper patient care but also the appropriate adaptations, triage, and workflow of dermatology care using telemedicine.

Second, medical school curricula can leverage teledermatology to facilitate existing didactic programs into teaching medical knowledge. In fact, the long standing tradition of Kodachrome review sessions, in which an attending physician presents unknown clinical images to trainees, is itself a representation of an established technique that

harnesses telemedicine diagnostic skills for general dermatology education.

In the residency survey regarding teledermatology, only 5 of the 57 programs reported that residents have knowledge of health policy effects and the legal landscape of teledermatology. Ten of the 57 programs felt that residents lack any knowledge of telemedicine.<sup>4</sup> Given this gap in education, the designated time during residency and medical training should prepare trainees, through both practice cases and teaching sessions, for telemedicine visits. Although store-and-forward teledermatology was previously the most-used modality in both care and education before the pandemic,<sup>5</sup> given the expansion of video visits during the COVID-19 pandemic, synchronous telemedicine practices must also be included. Besides using teledermatology for practice and medical knowledge, given the rapidly changing environment, it will remain important to engage trainees on the legal and financial aspects of telemedicine.

Given the potential for teledermatology in education, we hope that in the future, medical schools and residency programs will expand their telemedicine curricula to provide the most comprehensive training for our future dermatologists.

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### Conflicts of interest

Dr Lipoff has served as a paid consultant on telemedicine for Havas Life Medicom and is an advisor for AcneAway, a direct-to-consumer telemedicine start-up. Authors Hassan, Safadi, and Mohammed have no conflicts of interest to declare.

**REFERENCES**

1. Kennedy J, Arey S, Hopkins Z, et al. Dermatologist perceptions of teledermatology implementation and future use after COVID-19: demographics, barriers, and insights. *JAMA Dermatol*. 2021;157(5):595-597.
2. Gabel CK, Nguyen E, Karmouta R, et al. Use of teledermatology by dermatology hospitalists is effective in the diagnosis and management of inpatient disease. *J Am Acad Dermatol*. 2021;84(6):1547-1553.
3. Sharma P, Kovarik CL, Lipoff JB. Teledermatology as a means to improve access to inpatient dermatology care. *J Telemed Telecare*. 2016;22(5):304-310.
4. Wanat KA, Newman S, Finney KM, Kovarik CL, Lee I. Teledermatology education: current use of teledermatology in US residency programs. *J Grad Med Educ*. 2016;8(2):286-287.
5. Boyers LN, Schultz A, Baceviciene R, et al. Teledermatology as an educational tool for teaching dermatology to residents and medical students. *Telemed J E Health*. 2015;21(4):312-314.

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