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## COVID-19 and its effect on medical student education in dermatology



*To the Editor:* We read with great interest the article by Oldenburg and Marsch<sup>1</sup> that highlighted the significant effect on the delivery of dermatology resident education by the coronavirus disease 2019 (COVID-19) pandemic. Because many medical schools have suspended clinical rotations since March 2020,<sup>2</sup> telemedicine has become vital to medical education. As Oldenburg and Marsch<sup>1</sup> pointed out, resident education is essential and “should not be sidelined during the COVID-19 pandemic.” We are in agreement and would also like to underscore the importance of including medical students in our educational pursuits.

The majority of US medical students receive minimal exposure to dermatology. Only 0.24% to 0.3% of medical schools' curricula are spent on dermatology,<sup>3</sup> which often translates to decreased comfort with managing basic dermatologic conditions. Ulman et al<sup>4</sup> found that in a quiz on basic dermatologic problems, fourth-year medical students received average scores of 49.9% and 32.2% on diagnostic and treatment items (70% was considered proficient). These trends are concerning, given that 35.5% of patients treated in primary care have dermatologic complaints.<sup>5</sup> Unfortunately, the deficiency in dermatologic education may only be exacerbated during the COVID-19 pandemic.

Dermatology is a visual field, and repetitive patient encounters are required for clinicians to develop the skills necessary for diagnosing and managing dermatologic conditions. Teledermatology offers a potential solution to medical student education during the COVID-19 pandemic. Herein, we discuss methods of implementing teledermatology to optimize medical student learning.

Although many dermatology appointments have been transitioned to virtual visits, medical students can still participate in these encounters. They may join video conferencing patient care encounters at the patient's and attending physician's discretion (Table I). This allows medical students to learn fundamental dermatologic concepts while participating in patient care, which can help optimize their learning in the absence of in-person visits.

Other online resources can also be helpful for supplementing medical education (Table II). Many dermatology residency programs hold online lectures, Kodachrome sessions, and journal clubs, and

**Table I.** Guidelines for encouraging medical student participation in virtual patient encounters

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The resident and attending physician initiate the video call with the patient. If permitted by the patient, the medical student then joins the video call.

Resident interviews the patient while attending physician is present during the call and listening. If permitted by the attending physician, the medical student may also help with the patient interview.

Resident explains the assessment and plan to the patient. Attending physician may then give additional input or suggestions.

If further discussion about a case is needed after the patient encounter, the resident, medical student, and attending physician can discuss the case after the patient leaves the virtual video conference.

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**Table II.** Online resources for learning dermatology

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American Academy of Dermatology basic dermatology curriculum: <https://www.aad.org/member/education/residents/bdc>

Visual Dx: <https://www.visualdx.com/professionals/student-resident>

NEJM photo challenge: <https://www.nejm.org/multimedia/images-in-clinical-medicine>

Figure 1: <https://www.figure1.com/>

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residents nationwide are often invited to join. Virtual dermatology society conferences, webinars, and podcasts are also available to most residencies. Although it is commendable that these resources are often available free to residents, it may also be beneficial to extend the invitation to medical students.

Although telemedicine is useful, it is also important to recognize that there are elements of dermatology education that cannot be replaced virtually, such as the ability to assess texture, perform biopsies, or use tools such as dermoscopy, Wood's lamp, and potassium hydroxide scraping. Ultimately, in-person visits are still needed. For the time being, however, it is important to optimize tele-education and to involve medical students as much as possible.

Medical education has changed significantly during the COVID-19 pandemic, and teledermatology has become essential for educational continuity. Dermatology education is important for all medical students because the majority will likely continue to encounter dermatologic problems throughout their

careers, and it is our responsibility to include them in our educational endeavors to the best of our ability.

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#### REFERENCES

1. Oldenburg R, Marsch A. Optimizing teledermatology visits for dermatology resident education during the COVID-19 pandemic. *J Am Acad Dermatol*. 2020;82(6):e229.
2. Important guidance for medical students on clinical rotations during the coronavirus (COVID-19) outbreak. <https://www.aamc.org/news-insights/press-releases/important-guidance-medical-students-clinical-rotations-during-coronavirus-covid-19-outbreak>. Accessed April 27, 2020.
3. McCleskey PE, Gilson RT, DeVillez RL. Medical Student Core Curriculum in Dermatology survey. *J Am Acad Dermatol*. 2009; 61:30-35.
4. Ulman CA, Binder SB, Borges NJ. Assessment of medical students' proficiency in dermatology: are medical students adequately prepared to diagnose and treat common dermatologic conditions in the United States? *J Educ Eval Health Prof*. 2015;12:18.
5. Lowell BA, Froehlich CW, Federman DG, Kirsner RS. Dermatology in primary care: prevalence and patient disposition. *J Am Acad Dermatol*. 2001;45:250-255.

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