

**Response to: “Comment on ‘The spectrum of COVID-19-associated dermatologic manifestations: An international registry of 716 patients from 31 countries’”**



*To the Editor:* We thank Baab et al<sup>1</sup> for their commentary on our article “The spectrum of COVID-19-associated dermatologic manifestations: An international registry of 716 patients from 31 countries.” The authors bring up important concerns, which we note in our limitations, including the lack of photo/biopsy evidence of COVID-19 dermatologic manifestations and limited laboratory confirmation. These issues are a result of the nature of registry-based case entry and poor availability of laboratory COVID-19 testing early in the pandemic.

The authors also note the lack of racial/ethnic diversity in our registry, which we agree is concerning and may be due in part to a deficiency in providers recognizing COVID-19 dermatologic manifestations in the skin of people of color.<sup>2</sup> Efforts to educate the medical community to recognize dermatologic disease in people of color are key. One example is the educational curriculum created by the Skin of Color Society, developed to aid trainees and dermatologists to recognize inflammatory skin eruptions in darker skin tones. Training in earlier recognition/diagnosis will hopefully help bridge health disparities and improve outcomes in diverse populations. As a specialty, we must also advocate broader access to dermatologic care in tandem with these educational efforts.<sup>3</sup>

However, we disagree that case entry by non-dermatologists weakens our claims. During the early COVID-19 pandemic, many dermatology offices were closed and operations temporarily halted. It was therefore non-dermatology frontline workers who were evaluating patients with COVID-19, and their inclusion was essential in recognizing potentially associated cutaneous manifestations. We would like to point readers to Supplemental Table II of our article, where we showed that cutaneous manifestations reported by dermatologists alone are similar to morphologies reported by all healthcare workers.

We are now almost a year out from launching the American Academy of Dermatology (AAD) and International League of Dermatological Societies COVID-19 Dermatology registry, which went live in April 2020. The pitfalls of registry-collected data remain, including the inability to estimate incidence/prevalence without a

denominator and challenges of ensuring the representativeness of cases. However, the registry has significant strengths, such as rapid case collection, enhancing international collaboration, and the ability to form hypotheses through real-time data analysis.<sup>4</sup>

Our registry has grown significantly from the referenced publication of 716 patients. We have almost doubled this number to 1253 patients with dermatologic manifestations associated with COVID-19, many of whom now have undergone more robust laboratory testing, allowing us to explore nuances of test timing and test positivity/negativity in mild disease.<sup>5</sup> The 7 publications from the registry to date must be viewed through the lens of the public health emergency, as the scientific community moved from no known skin findings associated with COVID-19 to characterizing the cutaneous manifestations and their potential implications within just a few months.

We have recently expanded the AAD/International League of Dermatological Societies COVID-19 Dermatology Registry to collect cutaneous manifestations of the novel COVID-19 vaccines. This registry grows daily as COVID-19 vaccines roll out across the world. The role of dermatologists in understanding cutaneous reactions to the COVID-19 vaccines demonstrates our specialty's critical impact, not only to this specific public health effort, but also to the House of Medicine at large.

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**Conflicts of interest**

Drs Freeman, Desai, and Fox are members of the AAD COVID-19 Ad Hoc Task Force. Author McMahon has no conflicts of interest to declare.

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