

# Nuances in Training During the Age of Teledermatology

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## RESIDENT PEARL

- The COVID-19 pandemic has accelerated the adoption of teledermatology, enhancing patient access to dermatologic care while also facilitating multidisciplinary discourse and providing opportunities for education and training. However, these virtual interactions require a vigilance for patient privacy and security with an added emphasis on visual diagnostics to deliver high-quality care.

COVID-19 was declared a global pandemic by the World Health Organization on March 11, 2020, and within the following 2 months, most states had issued mandatory stay-at-home orders, leaving many patients without access to outpatient care. Similar to many other outpatient-based specialties, dermatology quickly adopted telemedicine into clinical practice, and this expansion of virtual communication provided (1) increased access for patients living in remote areas, (2) ease of multidisciplinary collaboration, and (3) new opportunities for training and education. This article highlights the caveats of teledermatology, such as the need for excellent visual diagnostic skills and the vulnerability of patient privacy and protected information. Additionally, as teledermatology is poised to further expand in the future, it is critical to reflect on patient safety as well as its clinical efficacy in comparison to in-person evaluation.

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The COVID-19 pandemic largely altered the practice of medicine, including a rapid expansion of telemedicine following the March 2020 World Health Organization guidelines for social distancing, which recommended suspension of all nonurgent in-person visits.<sup>1</sup>

Expectedly, COVID-related urgent care visits initially comprised the bulk of the new telemedicine wave: NYU Langone Health (New York, New York), for example, saw a 683% increase in virtual visits between March and April 2020, most (55.3%) of which were for respiratory concerns. In-person visits, on the other hand, concurrently fell by more than 80%. Interestingly, nonurgent ambulatory care specialties also saw a considerable uptick in virtual encounters, from less than 50 visits in a typical day to an average of 7000 in a 10-day stretch.<sup>2</sup>

As a largely ambulatory specialty that relies on visual examination, dermatology was no exception to the swing toward telemedicine, or teledermatology (TD). Before the COVID-19 pandemic, 14.1% (82 of 582 respondents) of practicing US dermatologists reported having used teledermatology, compared to 96.9% (572/591) during the pandemic.<sup>3</sup> Even at my home institution (Massachusetts General Hospital [Boston, Massachusetts] and its 12 affiliated dermatology clinics), the number of in-person visits in April 2020 (n=67) was less than 1% of that in April 2019 (n=7919), whereas there was a total of 1564 virtual visits in April 2020 compared to zero the year prior. Virtual provider-to-provider consults (e-consultations) also saw an increase of more than 20%, suggesting that dermatology's avid adoption of TD also had improved the perceived accessibility of our specialty.<sup>4</sup>

The adoption and adaptation of TD are projected to continue to grow rapidly across the globe, as digitalization has enhanced access without increasing costs, shortened wait times, and even created opportunities for primary care providers based in rural or overseas locations to learn the diagnosis and treatment of skin disease.<sup>5</sup> Residents and fellows should be privy to the nuances of training and

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practicing in this digital era, as our careers inevitably will involve some facet of TD.

### The Art of Medicine

Touch, a sense that perhaps ranks second to sight in dermatology, is absent in TD. In either synchronous (live-interactive, face video visits) or asynchronous (store-and-forward, where digital photographs and clinical information sent by patients or referring physicians are assessed at a later time) TD, the skin cannot be rubbed for texture, pinched for thickness, or pushed for blanching. Instead, all we have is vision. Irwin Braverman, MD, Professor Emeritus of Dermatology at Yale University (New Haven, Connecticut), alongside Jacqueline Dolev, MD, dermatologist and Yale graduate, and Linda Friedlaender, curator at the Yale Center for British Art, founded an observational skills workshop in which trainees learn to observe and describe the paintings housed in the museum, noting all memorable details: the color of the sky, the actions of the animals, and the facial expressions of the people. A study of 90 participants over a 2-year period found that following the workshop, the ability to identify key diagnostic details from clinical photography improved by more than 10%.<sup>6</sup> Other studies also utilizing fine art as a medical training tool to improve “visual literacy” saw similarly increased sophistication in the description of clinical imagery, which translated to better diagnostic acumen.<sup>7</sup> Confined to video and photographs, TD necessitates trainees and practicing dermatologists to be excellent visual diagnosticians. Although surveyed dermatologists believe TD is presently appropriate for acne, benign lesions, or follow-up appointments,<sup>3</sup> conditions for which patients have been examined via TD have included drug eruptions, premalignant or malignant neoplasms, infections, and papulosquamous or inflammatory dermatoses.<sup>8</sup> At the very least, clinicians should be versed in identifying those conditions that require in-person evaluation, as patients cannot be held responsible to distinguish which situations can and cannot be addressed virtually.

### Issues of Patient-Physician Confidentiality

Teledermatology is not without its shortcomings; critics have noted diagnostic challenges with poor quality photographs or videos, inability to perform total-body skin examinations, and socioeconomic limitations due to broadband availability and speed.<sup>5,9</sup> Although most of these shortcomings are outside of our control, a key challenge within the purview of the provider is the protection of patient privacy.

Much of the salient concerns regarding patient-physician confidentiality involve asynchronous TD, where store-and-forward data sharing allows physicians to download patient photographs or information onto their personal email or smartphones.<sup>10</sup> Although some hospital systems provide encryption software or hospital-sponsored devices to ensure security, physicians may

opt to use their personal phones or laptops out of convenience or to save time.<sup>10,11</sup> One study found that less than 30% of smartphone users choose to activate user authentication on their devices, even ones as simple as a passphrase.<sup>11</sup> The digital exchange of information thus poses an immense risk for compromising protected health information (PHI), as personal devices can be easily lost, stolen, or hacked. Indeed, in 2015, more than 113 million individuals were affected by a breach of PHI, the majority over hacked network servers.<sup>12</sup> With the growing diversity of mediums through which PHI is exchanged, such as videoconferencing and instant messaging, the potential medicolegal risks of information breach continue to climb. The US Department of Health & Human Services urges health care providers to uphold best practices for security, including encrypting data, updating all software including antivirus software, using multifactor authentication, and following local cybersecurity regulations or recommendations.<sup>13</sup> For synchronous TD, suggested best practices include utilizing headphones during live appointments, avoiding public wireless networks, and ensuring the provider and patient both scan the room with their device’s camera before the start of the visit.<sup>14</sup>

### On the Horizon of Teledermatology

What can we expect in the coming years? Increased utilization of telemedicine will translate into data that will help address questions surrounding safety, diagnostic accuracy, privacy, and accessibility. One aspect of TD in need of clarity is a guideline on payment and reimbursement, and whether TD can continue to be financially attractive to providers. Starting in 2020, the Centers for Medicare & Medicaid Services removed geographic restrictions for reimbursement of telemedicine visits, enabling even urban-residing patients to enjoy the convenience of TD. This followed a prior relaxation of restrictions, where even prerecorded patient information became eligible for Medicare reimbursement.<sup>9</sup> However, as virtual visits tend to be shorter with fewer diagnostic services compared to in-person visits, the reimbursement structure of TD must be nuanced, which is the subject of ongoing study and modification in the wake of the COVID-19 pandemic.<sup>15</sup>

Another point to consider is the explosion of direct-to-consumer TD, which allows patients to receive virtual dermatologic care or prescription medication without a pre-established relationship with any physician. In 2017, there were 22 direct-to-consumer TD services available to US patients in 45 states, 16 (73%) of which provided dermatologic care for any concern while 6 (27%) were limited to acne or antiaging and were largely prescription oriented. Orchestrated mostly by the for-profit private sector, direct-to-consumer companies are poorly regulated and have raised concerns over questionable practices, such as the use of non-US board-certified physicians, exorbitant fees, and failure to disclose medication side effects.<sup>16</sup> A study of 16 direct-to-consumer telemedicine sites found substantial discordance in the suggested management of

the same patient, and many of the services relied heavily on patient-provided self-diagnoses, such as a case where psoriasis medication was dispensed for a psoriasis patient who submitted a photograph of his syphilitic rash.<sup>17</sup> Despite these problems, consumers show a willingness to pay out of pocket to access these services for their shorter waiting times and convenience.<sup>18</sup> Hence, we must learn to ask about direct-to-consumer service use when obtaining a thorough history and be open to counseling our patients on the proper use and potential risks of direct-to-consumer TD.

### Final Thoughts

The telemedicine industry is expected to reach more than \$130 billion by 2025, with more than 90% of surveyed health care executives planning for the adoption and incorporation of telemedicine into their business models.<sup>19</sup> The COVID-19 pandemic was an impetus for an exponential adoption of TD, and it would behoove current residents to realize that the practice of dermatology will continue to be increasingly digitalized within the coming years. Whether through formal training or self-assessment, we must strive to grow as proficient virtual dermatologists while upholding professionalism, patient safety, and health information privacy.

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