

## Teledermatology: The Next Frontier

Nanette B. Silverberg, MD

In medicine (unlike *Star Trek*) there are no final frontiers but rather the newest or latest frontier. Teledermatology is one of the burgeoning frontiers in which dermatologists are bravely going where our teachers had not gone before.

All dermatologists likely have participated in activities akin to teledermatology: telephone consultations, color slide identification, and the stray photographs sent from patients with orphan diseases in hopes of some medical direction. They are all pieces of teledermatology. The skills developed and honed by dermatologists through a combination of extensive education, pattern recognition, clinical acumen, and experience are the rudiments of diagnosing and treating individuals remotely. There are 2 types of teledermatologic examinations. The first is store-and-forward teledermatology in which a picture is taken and later evaluated by a dermatologist much like a radiologist would look at radiographs. It is time efficient, but the physician cannot look at the patient as a whole (eg, no full body examination or lymph node palpation) and it lacks the ability to ask questions. The second type is real-time teledermatology in which a dermatologist examines a patient via real-time video. This method allows more questioning but is more time consuming. Coverage of these services (ie, payment to the physician) is poor. A dermatologist deserves payment for their evaluation, time, and expertise, and payment currently is not guaranteed without in-person evaluation, similar to the lack of remuneration for time spent on the telephone with our patients.<sup>1</sup>

Opinions of the feasibility of teledermatology by skin disease type are mixed, and for this reason, I still believe it would be wise for individuals to follow-up with a dermatologist in person for long-term disease management. Although teledermatology

will allow dermatologists to expand their reach to remote areas, online medicine lacks some of the medical information achieved through proximity to the patient with in-person binocular vision and touch.

For skin cancers in patients in remote regional areas without a dermatologist, store-and-forward teledermatology has been evaluated at a Veterans Affairs medical center.<sup>2</sup> One hundred sixty-nine patients were included in the evaluation, and a more rapid evaluation and time to surgery was evaluated for the teledermatology group. The patients were older adults, mostly male, white, and with lesions in visible sites such as the head and neck or extremities.<sup>2</sup> The utility of teledermatology may vary for darker-skinned individuals because of difficulty capturing good photographs in patients of color and may be less well-received by everyone for areas such as the breast or genitals because of the embarrassment of public exposure.

While teledermatology can speed the process of skin cancer removal when identified, teledermatology for individual pigmented lesions does not help screen for skin cancers. Many melanomas are not identified by the patient but rather by a dermatologist during full-body examination. Teledermatology for individual pigmented lesions does not help screen for skin cancers. For this reason, in-person visits will always be preferable when available and certainly should be encouraged after all teledermatology evaluations.<sup>3</sup>

For pediatric rashes, store-and-forward teledermatology may be helpful at speeding access to care but will not always offer the same care as in-person evaluation (69% [94/135] concordance between telediagnosis and in-person diagnosis by a dermatologist, with clinically relevant disagreement in 16% [21/135]). Some of the difficulties in diagnosis include the type of photography (ie, full body vs close-ups) and poor quality of photographs.<sup>4</sup> Although not mentioned in the article, lack of textural data due to absence of palpation and lack of ability to palpate for lymph nodes also may cause diagnostic difficulty.

The flip side of telemedicine is the growing tele-educational field. Availability is perhaps the greatest

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From the Department of Dermatology, St. Luke's-Roosevelt Hospital Center, New York, New York; Beth Israel Medical Center, New York; and Columbia University College of Physicians and Surgeons, New York.

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advancement of online education in medicine. One of the most difficult aspects of medicine is juggling work and private life. Medicine is one of the few professions that is not left in the office. Availability to patients and the need to pursue educational efforts on one's own time impinge on a physician's quality of life as an individual. After all, physicians are people too. Impinging on one's education also is out of the question, yet physicians may be unable to fly around the country for continuing medical education coursework due to time or cost constraints. Working from home on one's own schedule allows physicians with families or busy schedules to maintain their intellectual curiosity in dermatology while taking away less personal time.

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