

Review Article

Teledermatology: a step forward

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Abstract Telemedicine describes the application of information and communication technologies across the whole range of functions that affect the health sector. The visual nature of dermatology makes this discipline an obvious candidate for telemedicine techniques, and the feasibility and reliability of teledermatology is already well established. Skin disorders can be telediagnosed by various experts worldwide, stimulating an exchange of knowledge and expertise. Building a connected world in dermatology by promoting free-access teleconsulting is one way to harness the opportunities opened up by the Internet, although concerns over security and privacy of health-care information remain.

Key words

Teledermatology, teleconsultation, telesupervision.

Introduction

The clinical adoption of advanced communication technologies over the next few years may alter health care delivery patterns in ways that were unheard of even a decade ago. Telemedicine utilizes modern telecommunication technology to exchange expert medical information between two or more distant medical centers. It has been defined as “the use of electronic information and communication technologies to provide and support health care when distance separates the participants.” In general terms, telemedicine is access to specialist knowledge by means of telecommunications and information technology. The specialties involved include mainly general medicine, radiology, pathology, cardiology, neurology, psychiatry, various surgical specialties (e.g. orthopedics, otolaryngology, ophthalmology, gynecology), and medical dermatology.

Dermatology has been a forerunner in the use of communications technology because the inherently visual nature of dermatology makes it easily applicable to virtual medicine. Teledermatology holds great potential for revolutionizing the delivery of dermatologic services to remote locations by means of telecommunications and information technology. It encompasses consultations between a patient with a skin

disease (and/or the primary healthcare provider) and a dermatologist for diagnosis and management advice. Teledermatology also covers dermatological education for health professionals and for consumers.^{1,2} Both real-time videoconferences and store-and-forward systems have proven to be highly reliable and accurate in teledermatologic diagnosis compared to traditional face-to-face diagnosis.³

According to a Scottish survey, diseases of the skin or subcutaneous tissue are now the most common reason for both men and women to attend their family doctor. The dermatology community in most of the developing countries is clustered around urban areas, limiting access to specialists for many patients in rural locations. Hence an increasing proportion of patients with skin disease are being diagnosed and managed without ever seeing a dermatologist. An increased collaboration between dermatologists and primary health care providers is required in order to address high patient demand and to provide education and support.

In this review, we will discuss how teledermatology is gradually taking roots and making its importance felt at international level.

Provision of dermatologic care to remote areas

As already mentioned, the dermatologic needs of many communities worldwide are

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underserved. Especially the remote rural areas suffer from a scarcity of dermatologists as well as limited means of communications and transportation. Teledermatology represents a unique way to overcome this difficulty because it enables primary health care providers and patients to use modern telecommunications devices to gain access to specialist consultations promptly and with much less travel.⁴ It has also been shown that store-and-forward teledermatology improves quality of care in both remote rural clinics and centrally located urban clinics. In short, teledermatology is a useful way to provide dermatologic support to remote or underserved communities.

Improved care

Teledermatology enables a dermatologist to improve the care that the patient receives, regardless of the setting or location in which that care is given. Patients in private residences, rest homes, ships, aeroplanes, battlefields, up mountains or in Antarctica can access specialist expertise when required. Thus care becomes available anytime, anywhere, eliminating the constraint of geography.

Supervision of residents

Teledermatology holds promise for the future of telesupervision of dermatology residents.⁵ Residents can provide care and image patients in one location and their supervisors can review images elsewhere. Using the teledermatology system, when a patient presents, the dermatology resident is required to:

- (1) perform a regular dermatology examination;
- (2) take digital pictures/images of patients' eruptions;
- (3) initiate the teledermatology record program;
- (4) upload images into the record;
- (5) type demographic data into a teledermatology medical record; and
- (6) call the attending dermatologist to review the record.

Then (7) the attending dermatologist accesses the system, reviews the record, and then

(8) the attending dermatologist and resident discuss the case by telephone, email or a videoconference.

Cost effectiveness

In some settings teledermatology can be more cost-effective than traditional dermatology, irrespective of the teledermatology system used. Patients can benefit from telemedicine by saving time and by experiencing fewer travel inconveniences.

Distance education of physicians

Teledermatology offers new research possibilities for a variety of dermatologic conditions and can provide a well-defined channel for interactions with experts in the field of dermatology.⁶ It encourages exchange of information among health-care professionals, including sharing information about disease prevention, early detection of disease, and the most effective practices in disease management. Local physicians benefit from access to improved research facilities. The professional interactions and opportunities to review occasional rare or unusual dermatological cases benefit the consulting experts.⁷

Conclusion

The role of telemedicine and the Internet in the dermatologist's future role in health care delivery requires thorough study, examination, and consideration. The most frequently cited concern was that the telemedicine eliminates the unique relationship between a patient and his/her provider.⁸

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