

# Tele dermatology in Developing Countries (Chances and Obstacles)

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## Abstract

Telemedicine has started to be a serious tool for improving healthcare in rural areas of poor developing but also rich industrial countries. Tele dermatology, as a sub-specialty of telemedicine, is particularly suitable for diagnosing and monitoring diseases over a distance. However, some dermatoses are less; others are more suitable for remote management. The technologies used provide big chances if the many obstacles can be overcome.

**Key words:** Chances; Obstacles; Tele dermatology

## Introduction

Providing access to reliable health information for health workers in developing countries by Telemedicine is the single most cost-effective and achievable strategy for sustainable improvement in health care.<sup>1</sup> Among the many fields of application, tele dermatology (TD) is most important for people living in rural areas, in which a relatively small number of common diagnosable and treatable diseases account for most of the skin disease burden.

The 2019-CoV has recently opened a new dimension for the impact of telehealth care, in which lack of personal contact may be lifesaving in our globalized 'virulent' world.

## Tele dermatology in Nepal

In the past, there have been several tele dermatological activities in Nepal and in Asia on a national and international level.<sup>2-5</sup>

- CHEST/DISHARC (Community Health Education Services by Telehealth/DI Skin Health and Referral Center) together with STRAPAL (Strategic Partnership for Nepal; [www.strapal.org](http://www.strapal.org)) and SUBISU have installed internet access in 3 villages

(Gerkuthar, Bawanghama, and Mudikuwa). During the past years and especially during the Covid 19-pandemic, many teleconsultations have been performed.<sup>2,6</sup>

- The one dollar, a month project of Dr Mahabir Pun and his Nepal wireless team over the past years has provided internet connections for several rural areas.
- The SODVELON conference 2008 presented a Seminar on Community Health Service and Education by Telemedicine and Tele dermatology.
- The International Committee of E-Health and Tele-Health (ICEHAT) organized a successful international meeting in Kathmandu in 2018.
- A virtual International Conference on Dermatology (VICOD) was organized by ICEHAT on 2<sup>nd</sup> of October 2021, during the Covid Pandemic.
- In March 2023, a virtual workshop on dermatopathology was organized by the Kathmandu Institute of Medicine (IOM) March 3<sup>rd</sup>, 2023.

When addressing the chances and obstacles of TD, important issues are the reliability of a diagnosis made

**Date of Submission:** 24<sup>th</sup> July 2023

**Date of Acceptance:** 10<sup>th</sup> September 2023

**Date of Publication:** 1<sup>st</sup> October 2023

## How to cite this article

How to cite the article: Burg G. Tele dermatology in Developing Countries. NJDVL 2023;21(2) 1-3. <https://doi.org/10.3126/njdvl.v21i2.56906>



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**Funding:** None

**Conflict of Interest:** None

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without face-to-face consultation, the satisfaction of the patient, and the acceptance of TD by patients.<sup>7</sup>

### Chances

The target groups, who benefit most from TD, are patients in whom a proper diagnosis has been made in a previous, mostly face-to-face workup and in whom poor physical or travelling conditions hamper regular follow-up visits. Other reasons to be overcome by TD may be debilitating co-morbidities or the threat of losing the workplace. TD is a stressless, time-and-cost-saving procedure, valid in poor developing countries and rich industrial countries with high social healthcare standards, where a major obstacle often lies in the difficulties of scheduling and getting an appointment with the specialist.

There is also a strong psychological argument for TD, which usually is underestimated: immobilized patients living alone or far away from a healthcare center suffer from their isolation, which TD can overcome, simulating proximity. Especially in developing countries, healthcare personnel hesitate to leave the urban cities for rural areas because of their worried isolation. TD can solve this problem.

Face-to-face consultation and talking with the patient – either in the office or in a camp- still is the gold standard for making a reliable, proper diagnosis; the reliability of tele dermatology diagnosis is an important issue.<sup>7</sup>

The most common dermatoses in Nepal in decreasing frequencies are fungal diseases, eczema, infections and infestations, acne, pigmentary disorders, and neoplasias.

In the 101 patients investigated mobile tele dermatology for rural Nepal,<sup>8</sup> high concordance with face-to-face diagnosis was seen in patients with infectious dermatoses (fungi, pyoderma), in acne and pigmentary disorders. In contrast, the concordance was lower in eczemas and neoplasias.

The dermatoses most suitable for TD are diseases which do not require additional histologic or laboratory confirmation, like frequent primary inflammatory dermatoses (bacterial or fungal infections and infestations, including Neglected Tropical Diseases (NTD's)), intolerance reactions (eczema, urticaria), acne, rosacea, pigmentary disorders (vitiligo, melasma). It is less suitable for suspected melanoma, which, anyway, is very rare in Nepal. A big field of application for TD is monitoring chronic or recidivous diseases, like psoriasis, eczema, leg ulcers, swollen legs, or actinic damages.

### Obstacles

Apart from the significant chances, there are several obstacles obscuring the success of TD as a modern tool for delivering health care, especially in rural areas of developing countries with limited resources.

Telemedicine implementations often remain in the pilot phase and fail in scaling up to robust products that are used in daily practice.<sup>9</sup>

Dermatoses, which require histologic or laboratory confirmation and monitoring,

or targeted therapies are less suitable for TD. These include autoimmune diseases, some neoplasias, metabolic disorders (porphyrias, diabetes), and Sexual Transmitted Infections (STI's), which need close communication, information, and counseling of the patient.

Whether a live-interactive (LI), store-and-forward (S&F), or hybrid setting is preferred depends on personal, technical, local, or regional conditions. LI is more challenging in terms of scheduling and time management. In every case the setting for TD usually consists of the service provider – usually a specialist physician on one end of the TD link – and the patient on the other end, whom somebody should assist with basic medical and technical skills. These requirements in developing countries often are hampered by economic, technical, or logistic constraints. In rich industrial countries, the difficulties getting an appointment with the specialist is more important than the financial or traveling constraints.

One of the most essential barriers TD faces in rural areas of developing countries are related to external environmental factors such as irregular electricity supply, slow internet, lack of proper infrastructures, and technology, illiteracy among the users, and insufficient skilled health personnel. The lack of education leads to reluctant acceptance of modern tools, the need of which has yet to be felt to be required in their life before.

Nevertheless, the satisfaction of patients once served by TD is very high (90%), and almost all patients agreed to use the service in the future again when needed.<sup>6</sup>

### Conclusion

In conclusion, telemedicine is no longer a nice gadget for maniacs but has started to be a serious tool for improving healthcare worldwide, in rich industries, and even more in poor developing countries.

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