

IMPLEMENTATION AND ASSESSMENT OF A TELE-DERMATOLOGY STRATEGY FOR IDENTIFICATION AND TREATMENT OF SKIN LESIONS IN ELDERLY PEOPLE

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Abstract

Introduction: The world's population is living longer which is resulting in a higher incidence of pressure ulcers. **Objectives:** (1) To describe the implementation of a teledermatology strategy to identify and treat skin lesions in institutionalised elderly patients; (2) To evaluate the established teledermatology strategy. **Method:** This study was carried out in a geriatric home (AMP) in Brazil, and included: (1) Implementation of a teledermatology method; (2) Evaluation of the strategy through: a) professional knowledge assessment, b) professional satisfaction, c) clinical aspects evaluation. **Results:** (1) The team consisted of a remote consulting team, local care team, dermatologist and infectologist. Digital records of skin lesions and weekly monitoring was implemented and was standardised using the iPhone 5's camera coupled with a dermatoscope in cases of minor lesions. Data were stored in the cloud using FotoFinder Hub[®]. (2) Professionals' knowledge (n=24): age 34.6±7.3 years; 16 responded to the post-test and there was no difference between the 2 tests (86.8± 7.1 and 84.5±9.5, P=0.38). Professional satisfaction (n=17): 16 (94.2%) showed interest in indicating this type of assistance modality to another professional. **Clinical aspects' evaluation:** hypertension had the highest prevalence, 9 (50%). Pressure ulcers were identified in 18 patients (83.3%), the heels, 7 cases, were the most affected area (39%). **Healing Process:** 4 lesions (22.2%) took over 3 months to complete the re-epithelialisation and 6 patients (33.3%) died before the end of treatment. **Conclusion:** The proposed teledermatology strategy has resulted in better assistance for elderly patients.

Key-words: health of elderly; pressure ulcer; dermatology; distance education; telenursing

Introduction

According to the World Health Organization (WHO), there is an exponential increase in life expectancy worldwide. Additionally, between 2015 and 2050, the population over 60 years of age will increase from 12 to 22 million.¹⁻³ Due to the typical fragility of the aging process, there is a predisposition to the development of pressure ulcers, which demand high costs and knowledge for their appropriate treatment.^{4,5}

One of the ways to equip professionals is through telehealth.⁶ The objective of this paper is to describe and evaluate the implementation of a teledermatology strategy to identify and treat skin lesions in institutionalised elderly in a home in the interior of state of Rio Grande do Sul, Brazil.

Methods

The implementation of the tele-dermatology strategy was developed through a partnership with AGM TELESSAÚDE DO BRASIL LTDA (a Brazilian private company) and the Telehealth Centre located at the Institute of Cardiology of Rio Grande of Sul-Brazil (IC/FUC). Funding was provided by the John Deere of Brazil Company.

The professional team is composed of a consulting team of professionals from the AGM TELESSAÚDE DO BRASIL LTDA and from the IC/FUC's through the Telehealth Centre; a local care nursing team from Asilo de Mendigos de Pelotas (AMP); a dermatologist consultant who gives a second opinion; and an infectologist consultant: who gives a second opinion. The sites for implementing the strategy (recording of

images, professional training and request for advice) were defined through a visit made by the consulting team in the AMP.

To standardise image capture, an iPhone 5s camera coupled to a dermatoscope called the Handyscope[®] is used in cases of small lesions.^{7,8} All information was stored in the cloud through an application called Fotofinder[®], allowing subsequent access through the online platform FotoFinder Hub[®] where all clinical data and patient images are encrypted and stored separately.⁹⁻¹¹ Software for storing and managing clinical data was developed and hosted on a server of the Data Processing Centre (CPD) of the IC/FUC's eHealthCentre.

To identify patients at risk of developing lesions, the BRADEN scale was applied. To evaluate the healing process of the lesions, the Pressure Ulcer Scale for Healing (PUSH 3.0) scale was applied weekly.¹²⁻¹⁵

The assistance team was trained by the consulting team through weekly sessions, interspersed with face-to-face and distance meetings through a web conferencing platform called Anymeeting Pro[®] or Skype[®].

Evaluation of tele-dermatology strategy

For the evaluation of the strategy, the following aspects were considered:

Professionals' Knowledge.

Pre and post-tests of knowledge were applied to the AMP nursing team, before the training and six months after implementation of the strategy.

Professionals' Satisfaction.

Professional satisfaction was evaluated through the application of the *CARDIOSATIS-EQUIPE* scale adapted.¹⁶ The instrument was applied by the care nurse after six months of implementation of the strategy.

Evaluation of clinical aspects. Risk for injury development which was evaluated by the attending nurse at the time of the first recording of the images, using the BRADEN scale.^{12,13}

Classification of injuries

The identified lesions were classified separately by the care nurse (AMP) and by the consulting nurse (at distance) according the classification standardised by the National Pressure Ulcer Advisory Panel (NPUAP), using scores I, II, III IV or NE (non-viable), when they were inserted into the platform, and the percentage of agreement between the graders was calculated.¹⁴ The care team took weekly digital photos of the lesions and submitted them for assessment by the consulting nurse

through the Fotofinder[®], until closure of the case.¹⁰ The healing process was evaluated using the PUSH 3.0 scale.¹⁵

Results

Tele-dermatology strategy

The consulting team, together with the AMP care team, systematised the teledermatology service workflow. (Figure 1) In this way, the management of strategy and clinical information of the elderly people is under the responsibility of the consulting team.

Evaluation of tele-dermatology strategy

Professionals' knowledge. Twenty-four professionals participated in the study, mean age 34.6 ± 7.4 years. The mean pre-test and post-test scores were 86.8 ± 7.1 and 84.5 ± 9.6 , respectively ($P = 0.38$). There was no difference in knowledge between the tests.

Professionals' satisfaction. Of the 24 professionals involved in the study, 17 answered the satisfaction survey, of whom 13 (76.5%) were satisfied and 3 (17.6%) fully satisfied.

Clinical evaluation. Eighteen elderly individuals with skin lesions were followed from May to November, 2015. Patients ages ranged between 75-90 years were the most prevalent 12 (66.6%), and hypertension was present in 50% of the population. Regarding the type of lesion, 15 (83.3%) were characterised as pressure ulcers. The most affected sites were the heels, representing 7 cases (39%), 4 (22.5%) coccygeal region and 2 (11%) right foot, 1 (5.5) right trochanteric region and 1 (5.5%) right toe.

Risk for injury development. In total, of the eighteen patients who presented skin lesions only three (16.7%) presented a high risk of injury development, three (16.7%) presented moderate risk and three (16.6%) high risk of developing lesions.

Classification of injuries. There was agreement in 16 (88.8%) of the cases, as follows: 13 stage II, two stage I and one stage III. The two discordant cases (11.1%) were related to criteria for classifying the lesions as stage IV or NE (unstageable).

Healing process. Six patients (33.3%) died before the end of treatment and five patients (27.8%) had complete epithelialisation in the two-month period.

Discussion

The systematisation of the nursing process allows the team to evaluate the patients in an individualised

way.¹⁶ During the implementation, some routines were changed, mainly with regard to dressings, frequency and products used to make dressings, which became available with project resources. It was concluded that the implementation of the tele-dermatology strategy benefited both the patient and the institution, as evidenced by professional satisfaction,

as well as in the time to cicatrization of the identified lesions. It is suggested that in the next step a clinical trial be conducted comparing the implementation of the tele-dermatology strategy to the face-to-face method.

TELE-DERMATOLOGY STRATEGY

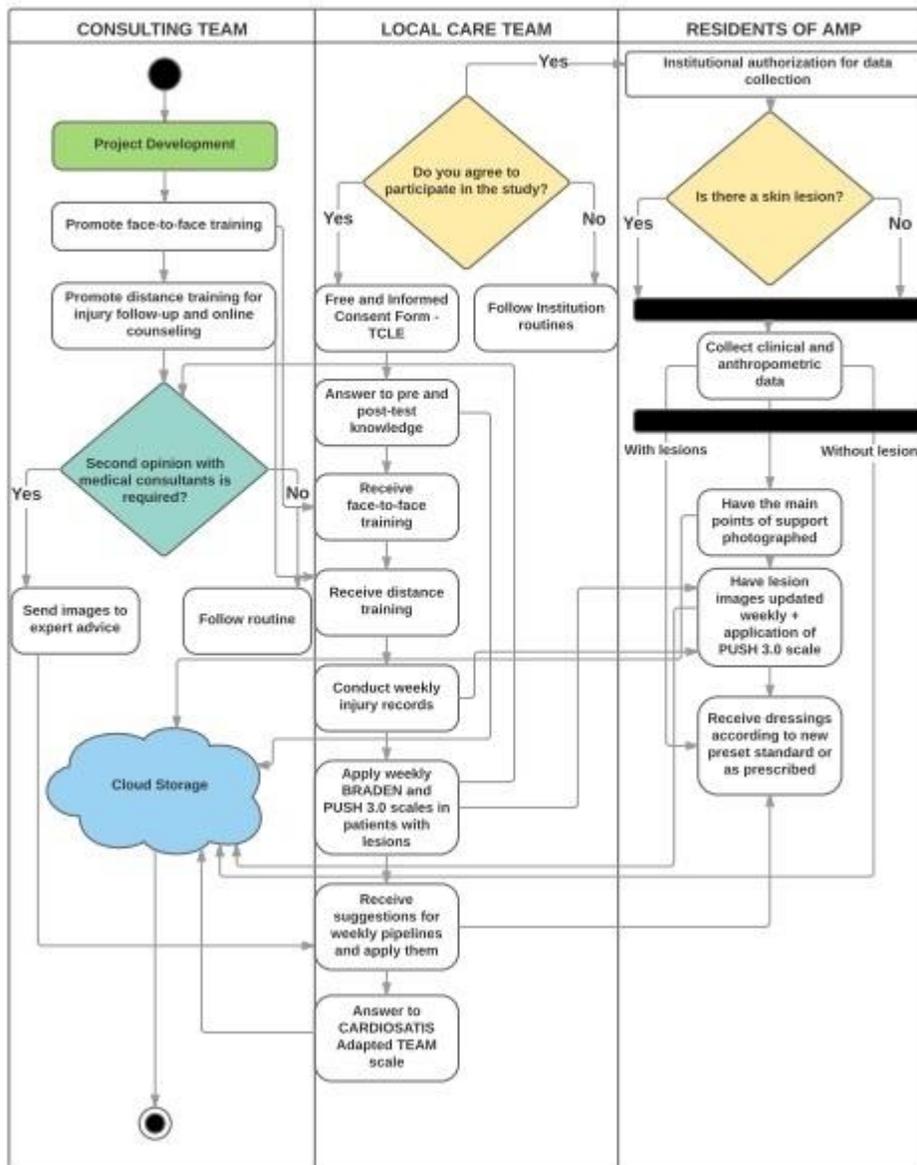


Figure 1. Flowchart for Implementation of the Tele-dermatology Strategy.

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Conflict of interest. The author declares no conflict of interest.

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