Session 3: 09 March 2022
The Use of Telehealth for Evaluation in Specialty Medicine and Allied Health

Teledermatology

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Disclaimer

NO CONFLICT OF INTEREST

NO FINANCIAL ASSOCIATIONS

HONORARIUM: NONE

Objectives:

01

Learn the types of practice models and delivery platforms in teledermatology.

02

Review information confirming teledermatology as an accurate and effective means of providing health care.

03

Review recommended practice guidelines and dermatologic disease states with high disability potential.

Definition

Teledermatology:

Enabling remote diagnostic and treatment recommendations for skin conditions in areas without local dermatologic care by electronic communication technologies.

Practice models

Physician to Physician Teledermatology

Outpatient

Inpatient

Consumer to Physician Teldermatology

Outpatient

Platform Definitions

Synchronous

- Real time video conferencing (RTVC)
- Better for data gathering
- Worse image quality, wide band width, time zone disparities
- Costly equipment

Asynchronous

- Digitally “Stored” images/hx and “forwarded” electronically (SAF)
- Most common, high resolution images, no time zone disparity
- Economical

Hybrid

- Combination RTVC and SAF

J Telemed Telecare. [Epub] 2022 Feb 02.

Effect of COVID

Telemedicine and e-Health, Vol. 27, No. 7 | Original Research

Free Access

Utilization of Asynchronous and Synchronous Teledermatology in a Large Health Care System During the COVID-19 Pandemic

Rashek Kazi, Maria R. Evankovich, Rebecca Liu, Andrew Liu, Autumn Moorhead, Laura K. Ferris, Louis D. Falo Jr, and Joseph C. English III

Published Online: 8 Jul 2021 | https://doi.org/10.1089/tmj.2020.0299

Telemed J E Health. 2021 Jul;27(7):771-777

Conclusions: *Asynchronous teledermatology was used more for acne management, whereas synchronous teledermatology was preferable to providers for complex medical dermatology. Postanalysis of the data collected led us to institute a hybridization of our asynchronous and synchronous teledermatology.*

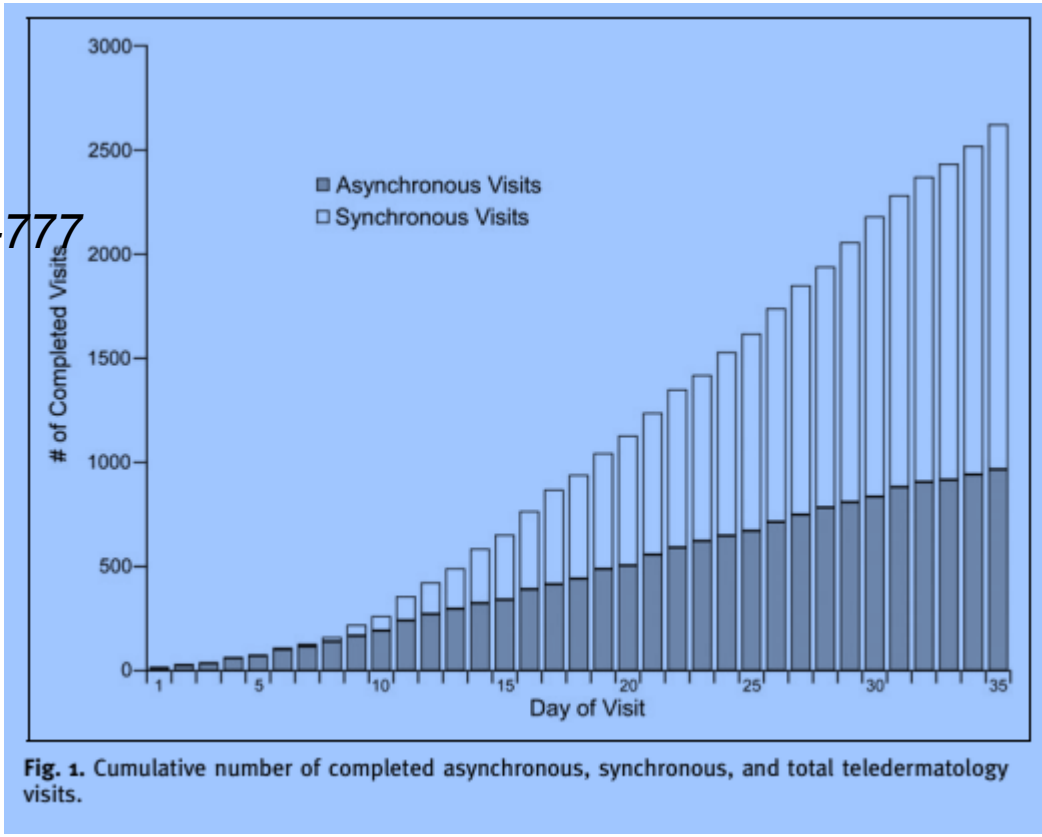

Fig. 1. Cumulative number of completed asynchronous, synchronous, and total teledermatology visits.

Evidence-Based Teledermatology

- Accuracy and Effectiveness
  - SAF vs Standard in-live
    - Comparable Diagnositics
    - Inter-observer agreements between tele-dermatologist and live dermatologist up to 90%

Am J Clin Dermatol 2018;19:253

Future

Artificial Intelligence in the Evaluation of Telemedicine Dermatology Patients

February 2022 | Volume 21 | Issue 2 | 191 | Copyright © February 2022

Published online January 24, 2022

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ABSTRACT

Background: Background: Early detection of malignant skin lesions reduces morbidity. There is increased need for a telemedicine triage tool to prioritize patients who require in-person evaluation for potential malignancy.
Objective: To evaluate the utility of artificial intelligence (AI) in telemedicine triage and diagnosis of cutaneous lesions.
Methods: Clinical photographs of unbiopsied skin lesions were presented to AI software and three board-certified dermatologists with 18 years average clinical experience. Diagnoses were compared with biopsy reports of the same lesions.
Results: Results from 100 images revealed no significant diagnostic difference between AI and a panel of three dermatologists when using the AI top three differential diagnoses. The AI correctly identified 63% of the cases whereas the dermatology group correctly identified 64.3% of the cases ($P<.05$). In summary, there was no statistically significant difference when evaluating lesions.
Conclusion: The use of artificial intelligence as a method of triaging patients with potential skin cancer is a very useful option in telemedicine, as AI identification of BCC, SCC, and melanoma did not significantly differ from board-certified dermatologists. Both dermatologists and non-dermatologists will benefit from an AI triage system, prioritizing lesions that the software deems malignant.

Evidence-Based Teledermatology

- Cost, Efficiency and Quality
  - Cost:
    - Reduction of healthcare organizational costs
    - Patient travel cost and work lost avoided
  - Efficiency:
    - Triage effective in preventing up to 70% in-person referrals
    - Reduces time to care for skin cancers and time to inpatient consults.
  - Quality:
    - Based on who performs the consult
    - Beware of some Direct-to-Consumer Applications

Am J Manag Care 2021;27:30.
Telemed J E Health. 2020 Jul;26(7):872-878
J Am Acad Dermatol 2019;81:1446

STUDY

Diagnostic Inaccuracy of Smartphone Applications for Melanoma Detection

Joel A. Wolf, BA; Jacqueline F. Moreau, BA; Oleg Akilov, MD; Timothy Patton, DO; Joseph C. English III, MD; Jonhan Ho, MD; Laura K. Ferris, MD, PhD

Objective: To measure the performance of smartphone applications that evaluate photographs of skin lesions and provide the user with feedback about the likelihood of malignancy.

Design: Case-control diagnostic accuracy study.

Setting: Academic dermatology department.

Participants and Materials: Digital clinical images of pigmented cutaneous lesions (60 melanoma and 128 benign control lesions) with a histologic diagnosis rendered by a board-certified dermatopathologist, obtained before biopsy from patients undergoing lesion removal as a part of routine care.

Main Outcome Measures: Sensitivity, specificity, and positive and negative predictive values of 4 smartphone applications designed to aid nonclinician users in determining whether their skin lesion is benign or malignant.

Results: Sensitivity of the 4 tested applications ranged from 6.8% to 98.1%; specificity, 30.4% to 93.7%; positive predictive value, 33.3% to 42.1%; and negative predictive value, 65.4% to 97.0%. The highest sensitivity for melanoma diagnosis was observed for an application that sends the image directly to a board-certified dermatologist for analysis; the lowest, for applications that use automated algorithms to analyze images.

Conclusions: The performance of smartphone applications in assessing melanoma risk is highly variable, and 3 of 4 smartphone applications incorrectly classified 30% or more of melanomas as unconcerning. Reliance on these applications, which are not subject to regulatory oversight, in lieu of medical consultation can delay the diagnosis of melanoma and harm users.

JAMA Dermatol. 2013;149(4):422-426.
Published online January 16, 2013.
doi:10.1001/jamadermatol.2013.2382

30% of cases incorrectly classified

Practice Guidelines

- American Telemedicine Association
  - Clinical guidelines
  - Technical specifications
  - Security &Safety
  - Limitations & Challenges

  Telemed JE Health 2016;22:981

- American Academy of Dermatology
  - Similar to ATA
    - Stress:
      - Patients/Referring physicians should have choice of Teledermatologist
      - Maintain physician patient relationship

  www.aad.org

Original Investigation

Choice, Transparency, Coordination, and Quality Among Direct-to-Consumer Telemedicine Websites and Apps Treating Skin Disease

Jack S. Resneck Jr, MD; Michael Abrouk; Meredith Steuer, MMS; Andrew Tam; Adam Yen; Ivy Lee, MD; Carrie L. Kovarik, MD; Karen E. Edison, MD

JAMADermatol.2016;152(7):768-775

1. Disclose credentials
2. Proof of Patient identify
3. Collect appropriate Hx
4. Order labs
5. Tx with EB data
6. Give Rx and discuss ADR
7. F/U
8. QI

* Best if linked to their EMR

Box 2. Authors' Recommended Practices for Direct-to-Consumer Telemedicine Websites

- Disclose the licensure, credentials, and location of their clinicians, making sure that all are licensed in the states where patients are located, and give patients some choice of which clinician will provide their care.
- Obtain proof of identity of patients seeking care, and establish an initial relationship with live interactive video before beginning a store-and-forward relationship (when a patient's existing health care team is uninvolved).
- Collect relevant medical history, including at least a history of present illness, review of systems, medication list, and drug allergies. In many instances, appropriate past medical records should be available to the consulting clinician.
- Recognize that the accurate diagnosis of disease often requires an interactive history, and train participating clinicians to ask appropriate follow-up questions to complete a patient's relevant medical history.
- Seek the use of laboratory studies in clinical scenarios when an in-person physician would have relied on those studies.
- Provide diagnoses and treatments consistent with existing evidence-based guidelines.
- Engage in meaningful informed consent, including discussion of risks, potential adverse effects, pregnancy concerns, and a clear follow-up plan when prescribing medications.
- Collect information about a patient's existing health care team and provide medical records to relevant team members—unless a patient opts out.
- Have relationships with local physicians in all areas where they treat patients, so that patients are not sent to emergency departments or left on their own when they need urgent in-person follow-up or experience medication adverse effects.
- Create quality assurance programs that regularly monitor clinical performance, patient outcomes, follow-up, and care coordination.

Legal Issues

- Federation of State Medical Boards
  - Teledermatology/ist are held to same standards as face-to-face practice for internet prescribing
  - Subjected to federal/state/local regulatory and licensure requirements where the patient is located.
    - Patient in PA you need PA Medical License
      - Some states with reciprocity
    - HIPAA compliance/Security/Authentication
    - Malpractice required to cover telemedicine services

Adult Listings (Part A)

Childhood Listings (Part B)

Disability Evaluation Under Social Security

8.00 Skin Disorders - Adult

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8.01 Category of Impairments, Skin Disorders

8.02 ***Ichthyosis,*** with extensive skin lesions that persist for at least 3 months despite continuing treatment as prescribed.

8.03 ***Bullous disease*** (for example, pemphigus, erythema multiforme bullosum, epidermolysis bullosa, bullous pemphigoid, dermatitis herpetiformis), with extensive skin lesions that persist for at least 3 months despite continuing treatment as prescribed. .

8.04 ***Chronic infections of the skin or mucous membranes,*** with extensive fungating or extensive ulcerating skin lesions that persist for at least 3 months despite continuing treatment as prescribed.

8.05 ***Dermatitis*** (for example, psoriasis, dyshidrosis, atopic dermatitis, exfoliative dermatitis, allergic contact dermatitis), with extensive skin lesions that persist for at least 3 months despite continuing treatment as prescribed.

8.06 ***Hidradenitis suppurativa,*** with extensive skin lesions involving both axillae, both inguinal areas or the perineum that persist for at least 3 months despite continuing treatment as prescribed.

8.07 Genetic photosensitivity disorders, established as described in 8.00E.

A. Xeroderma pigmentosum. Consider the individual disabled from birth.

B. Other genetic photosensitivity disorders, with:

1. Extensive skin lesions that have lasted or can be expected to last for a continuous period of at least 12 months,

OR

2. Inability to function outside of a highly protective environment for a continuous period of at least 12 months (see 8.00E2).

8.08 Burns, with extensive skin lesions that have lasted or can be expected to last for a continuous period of at least 12 months (see 8.00F).

Disability Evaluation Under Social Security

14.00 Immune System Disorders - Adult

14.01 Category of Impairments, Immune System Disorders

14.02 Systemic lupus erythematosus

14.03 Systemic vasculitis

14.04 Systemic sclerosis (scleroderma)

14.05 Polymyositis and dermatomyositis

14.06 Undifferentiated and mixed connective tissue disease

14.07 Immune deficiency disorders, excluding HIV infection

14.08 [Reserved]

14.09 Inflammatory arthritis

14.10 Sjögren's syndrome

14.11 Human immunodeficiency virus (HIV) infection

https://www.ssa.gov/disability/professionals/bluebook/8.00-Skin-Adult.htm

Clinical Examples of Skin disease with potential for Disability

- Bullous Disease
  - Cutis 2022;109:E14.
- Occupational Dermatitis and Urticaria
  - Immuno All Clin North Am. 2021;43:43
- Psoriasis
  - Front Med (Lausanne) 2021;16:8
  - BMC Health Serv Res 2017:17:337
- Atopic Dermatitis
  - JAAD Int 2020;2:12
- Hidradenitis Suppurativa
  - Br J Dermatol 2019;181:147.

Social Security
Office of Retirement and Disability Policy

SEARCH

Correlation Patterns between Primary and Secondary Diagnosis Codes in the Social Security Disability Programs

by Javier Meseguer

ORES Working Paper No. 113 (released June 2018)

Table 2.
Number and percentage of diagnoses (primary and secondary combined) cited in initial claims for disability benefits, by diagnostic group, 2009

Diagnostic group	Number	Percentage
Total	2,745,939	100.00
Mental disorders	836,136	30.45
Musculoskeletal system and connective tissue diseases	740,082	26.95
Circulatory system diseases	291,780	10.63
Nervous system and sense organ diseases	202,120	7.36
Endocrine, nutritional, and metabolic diseases	196,476	7.16
Injuries	129,260	4.71
Neoplasms	119,233	4.34
Respiratory system diseases	101,737	3.70
Digestive system diseases	64,846	2.36
Genitourinary system diseases	29,472	1.07
Infectious and parasitic diseases	24,067	0.88
Blood and blood-forming organ diseases	5,038	0.18
Skin and subcutaneous tissue diseases	4,813	0.18
Congenital anomalies	879	0.03

SOURCE: Author's calculations using DRF 100% extract.

NOTES: Data are for applicants who cleared step 1 of the disability determination process.

The total count includes 45,065 cases with identical impairment codes entered as the primary and secondary diagnosis for a given claimant. The total count differs from that shown in Table 1, which excludes those duplicated diagnoses.

https://www.ssa.gov/policy/docs/workingpapers/wp113.html

Summary

Am J Clin Dermatol (2018) 19:253–260
https://doi.org/10.1007/s40257-017-0317-6

REVIEW ARTICLE

Teledermatology: A Review and Update

Jonathan J. Lee[1] · Joseph C. English III[1,2]

Key Points

The three types of teledermatology care delivery platforms are synchronous, asynchronous, and hybrid.

The vast majority of research studies have found teledermatologic skin care to be comparable to conventional face-to-face care.

Teledermatology research data support its cost effectiveness and ability to decrease the need for in-person evaluations.

Practice guidelines for teledermatology have been developed by the American Telemedicine Association and American Academy of Dermatology.