



Perceptions of telehealth among inpatient consultative dermatology providers and practice patterns during COVID-19

Lida Zheng¹ · Lauren M. Guggina² · Xiaolong A. Zhou¹ · Karolyn A. Wanat³ · Joaquin C. Brieva¹ · John C. Trinidad⁴ · Cuong V. Nguyen¹

Received: 19 February 2023 / Revised: 19 February 2023 / Accepted: 4 May 2023 / Published online: 15 May 2023
© The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature 2023

Abstract

Use of inpatient teledermatology increased during the COVID-19 pandemic. We surveyed the Society for Dermatology Hospitalists to better characterize the impact of COVID-19 on teledermatology use by inpatient dermatology providers, particularly on provider perceptions of teledermatology. Prior to the COVID-19 pandemic, 40% (8/20) of surveyed providers had used telehealth at their institution to help perform inpatient consults, while 90% (18/20) adapted use of teledermatology during the pandemic. 80% (16/20) reported that their opinion of teledermatology changed as a result of the COVID-19 pandemic, with the vast majority (87.5%, 14/16) reporting having a more positive opinion. Benefits of teledermatology included efficiency, ability to increase access safely, and ability for clinicians to focus on complex cases. Some providers expressed concerns over the potential implications regarding the perception of dermatology within medicine, limitations of inadequate photos, and breakdowns in communication with consulting teams and patients. Robust algorithms and or utilization criteria of teledermatology may help to mitigate risk, while increasing access to inpatient dermatologic evaluation.

Introduction

Telehealth has been propelled forward by the Coronavirus disease-19 (COVID-19) pandemic. After policy changes and regulatory waivers were announced by the Centers for Medicare and Medicaid Services (CMS) in March of 2020, telehealth visits increased by 154% for the last week of March 2020 compared to the same period in 2019 [1]. In the field of dermatology, outpatient in-person visits decreased in an effort to limit the spread of COVID-19 and conserve personal protective equipment (PPE). Similarly, the use of teledermatology has been advocated in the inpatient setting with members of the Society for Dermatology Hospitalists

(SDH) implementing an algorithm to help triage inpatient teledermatology consults during the pandemic [2]. Prior to the COVID-19 pandemic, a survey of dermatologists at the SDH annual meeting found that 65% of those who responded used teledermatology in some form for inpatient care [3]. Given the increased use of teledermatology during the pandemic, we sought to better characterize the impact of COVID-19 on the perceptions and utilization of hospital-based teledermatology through a survey of the SDH.

Methods

An IRB approved survey was emailed to the SDH listserv on September 16, 2020. The 31-question survey (available at <https://redcap.nubic.northwestern.edu/redcap/surveys/?s=ED87T3DNMR>) assessed the attitudes, barriers, and protocols in regards to teledermatology before and after COVID-19. An open response section for additional comments was provided. There were 22 respondents representing 20 institutions. For the two institutions with two responses, one response was eliminated to avoid duplicate analysis for questions that were institution specific. Response rates varied per questions as answering all questions was not a requirement for completing the survey.

✉ Lida Zheng
Lzheng1@nm.org

¹ Department of Dermatology, Northwestern University, Feinberg School of Medicine, 676 N St. Clair Street Suite 1600, Chicago, IL 60654, USA

² Department of Dermatology, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

³ Department of Dermatology, Medical College of Wisconsin, Milwaukee, WI, USA

⁴ Department of Dermatology, Massachusetts General Hospital, Boston, MA, USA

Data were collected via REDCap with descriptive analysis performed by Excel.

Results

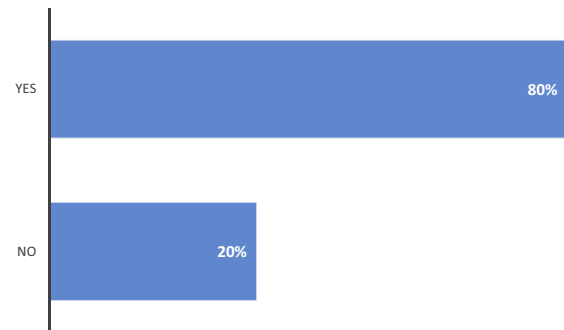
Prior to the COVID-19 pandemic, fewer than half of surveyed providers used telehealth to help perform inpatient consults (40%, 8/20). This dramatically increased during the pandemic with 90% (18/20) conducting inpatient teledermatology consults. Of the seven institutions that participated in teledermatology prior to COVID-19, the majority used teledermatology to staff consults with residents (87.5%, 7/8) or to triage consults (50%, 4/8). Only one respondent noted a formal institutional protocol for conducting inpatient teledermatology pre-pandemic. During the pandemic, slightly more than three quarters (77.8%, 14/18) developed a formal protocol or guidelines for conducting inpatient teledermatology consults. Teledermatology consult volume increased among all respondents (100%, 8/8).

Before COVID-related CMS policy changes, lack of sufficient reimbursement was a major factor in limiting inpatient teledermatology use (83.3%, 10/12). Other factors included perceived lack of interest from consulting services (75%, 9/12) and lack of resources to take/upload photos (5/12, 41.7%) or to perform live-interactive consults (50%, 6/12).

80% (16/20) of opinions regarding teledermatology changed as a result of the COVID-19 pandemic (Fig. 1a). The vast majority (87.5%, 14/16) reported having a more positive opinion. Over half (70%, 14/20) of the respondents had a strongly positive (45%, 9/20) or somewhat positive (25%, 5/20) perception of inpatient teledermatology (Fig. 1b). Only 20% had a somewhat negative (15%, 3/20) or strongly negative (5%, 1/20) perception.

Logistically, the vast majority used store-and-forward technology only without live patient interaction (83.3%, 15/18). Live interactive was used with store-and-forward in 44.4% (8/18) and used independently without store-and-forward by 27.8% (5/18). Of those using store-and-forward, only 11.8% (2/17) required full body images, while the remaining 88.2% (15/17) required only images of affected areas. Two-thirds (66.7%, 12/18) provided the consulting team instructions on how to take photos, but even so, additional photos were requested more than 50% of the time by one-third of respondents (6/18 or 33.3%). 64.7% (10/17) reported that the consulting teams either frequently (17.6%, 3/17), or sometimes (41.2%, 7/17), showed discontent when asked for additional photos. Finally, we also asked about the percentage of times an in-person consult was required after a teledermatology evaluation (Fig. 2a).

a Did your opinion of performing inpatient teledermatology consults change during the COVID-19 pandemic? (n=20)



b What is your opinion on providing inpatient teledermatology consults following the pandemic? (n=20)

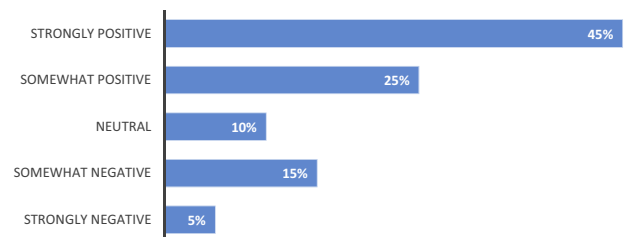


Fig. 1 Perceptions of inpatient teledermatology consults

Discussion

Our survey showed broader inpatient teledermatology utilization by the dermatologists' institutions due to COVID-19. Before COVID-19, 40% of institutions used teledermatology in some capacity to perform inpatient consults. This is less than the number reported by Weig and colleagues, which showed 55% (11/20) used teledermatology for inpatient and outpatient consults and 10% (2/20) used it for only inpatient consults, likely reflecting the difference in various institutions responding to each survey [3]. Given the overall small sample sizes of both studies, further studies are needed to demonstrate the true utilization of inpatient teledermatology. Both studies use the term broadly to include any use of photography or video to evaluate patients. Among our respondents, utilization of inpatient teledermatology increased by two measures during the pandemic: (1) over 80% (10/12) of institutions newly implementing inpatient teledermatology use during COVID-19, and (2) an increase in the number of teledermatology consults noted by all respondents.

While the majority of respondents felt positively about teledermatology, and almost 90% reported having a more positive

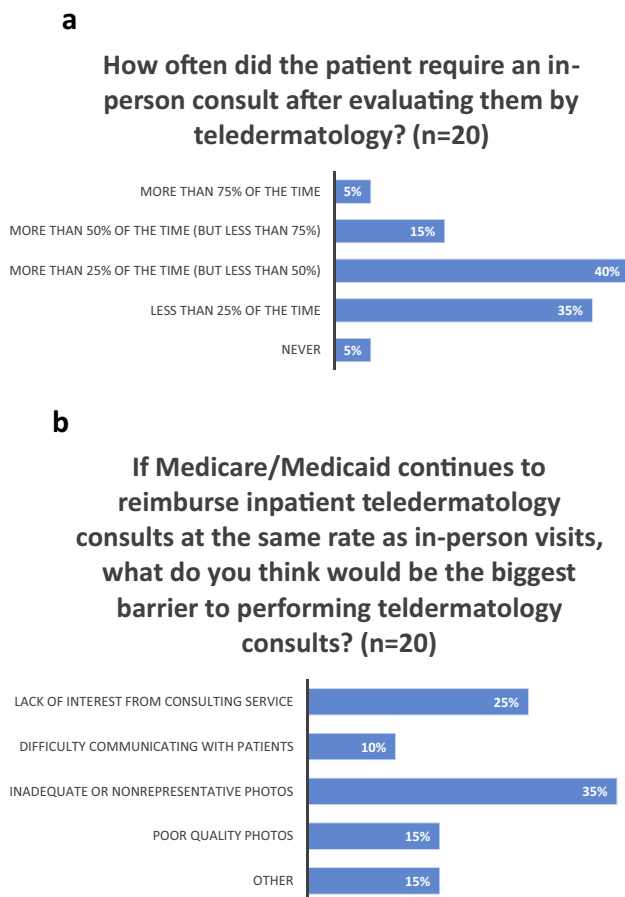


Fig. 2 Barriers to teledermatology consults

opinion after COVID-19, many providers also voiced concerns about providing inpatient teledermatology. Positive comments often cited the efficiency of teledermatology, including the faster ability to provide recommendations or to triage patients. One commenter remarked that simple cases were quickly addressed, allowing them to focus on high acuity cases. However, some downsides captured in comments included concern that the lack of dermatology presence at bedside would increase the marginalization of our field within the house of medicine. Some noted that there was potential for development of negative perceptions of dermatology by asking the team to take time to obtain photos or re-take photos. A recent case report of an incidental melanoma highlights the limitations of focused photos in missing important diagnoses that may be captured by bedside total body exam [4]. This may potentially be mitigated by creating a work-flow where obtaining photographs becomes standard of care prior to dermatologic consultation. From a patient safety perspective, misdiagnosis can occur if the team does not capture the most concerning skin finding or misses parts of the exam through incomplete photos. The concern for inadequate or inaccurate photos was the main apprehension for continuing teledermatology even if CMS continues to reimburse inpatient teledermatology after

the pandemic (Fig. 2b). In our experience, teledermatology was effective in making many diagnoses, but presented challenges in our communication with patients and helping them understand their diagnosis with the possibility of de-emphasizing the importance of patients' skin disease to their overall health. We attempted to reduce miscommunication by speaking directly with patients and setting up close outpatient follow-up within a couple weeks of patient discharge. We expect teledermatology to increase but as we move in the direction of utilizing more telehealth we must remain cognizant of the barrier it may provide in communicating with medical teams and patients.

We chose to survey SDH members as this group was most likely to have experience with inpatient teledermatology both before and during COVID-19. Some limitations included a limited sample size and that only attending Dermatology Hospitalists, mostly from academic medical centers, were surveyed.

Successful implementation of inpatient teledermatology will require us to continue navigating how best to accurately assess, communicate with, and treat our patients, while balancing the potential implications of the perception of dermatology within medicine. Robust algorithms and/or utilization criteria may help to mitigate risk, while increasing access to inpatient dermatologic evaluation.

Author contributions LZ and CN wrote the main manuscript text and prepared the figures. All authors were involved in developing the survey questions and reviewed the manuscript.

Data availability The data that support the findings of this study are available from the corresponding author, LZ, upon reasonable request.

Declarations

Conflict of interest The authors report no conflicts of interest.

References

1. Koonin LM, Hoots B, Tsang CA et al (2020) Trends in the Use of Telehealth During the Emergence of the COVID-19 Pandemic — United States, January–March 2020. *MMWR Morb Mortal Wkly Rep* 69:1595–1599
2. Trinidad J, Kroshinsky D, Kaffenberger BH, Rojek NW (2020) Telemedicine for inpatient dermatology consultations in response to the COVID-19 pandemic. *J Am Acad Dermatol* 83(1):e69–e71
3. Weig EA, Tull R, Chung J, Wanat KA (2020) Inpatient teledermatology: Current state and practice gaps. *J Am Acad Dermatol* 83(3):797–802
4. Deacon DC, Madigan LM (2020) Inpatient teledermatology in the era of COVID-19 and the importance of the complete skin examination. *JAAD Case Rep* 6(10):977–978

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.