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Commentary

Primary care providers' perceptions of mobile store-and-forward teledermatology

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Abstract

Introduction: Although teledermatology offers promise as a tool to increase access to care, adoption has been limited. Understanding the perspectives and experiences of key stakeholders, such as primary care providers (PCPs) and patients, is important to identify opportunities to reduce barriers to adoption and to improve teledermatology programs. Although many studies have examined patients' experiences and satisfaction with teledermatology, few have examined referring PCPs' perspectives.

Objective: To identify PCPs' perceptions on the strengths and limitations of teledermatology in order to identify opportunities to improve teledermatology programs.

Methods: We distributed an anonymous, web-based survey to 30 PCPs involved in a two-year study evaluating a mobile app-based teledermatology platform.

Results: 100% (18/18) agreed or strongly agreed that teledermatology increases access to dermatologic care, improves patient care, and is acceptable to patients. 100% (18/18) agreed or strongly agreed that teledermatology provides educational benefit to the PCP. Only 6% (1/18) agreed that teledermatology increases medical liability and 11% (2/18) agreed that it increases risk of a breach in privacy or confidentiality.

Conclusions: Our findings highlight that PCPs are highly satisfied with mobile app-based, store-and-forward teledermatology and that they believe teledermatology offers synergistic educational benefit. We hope these results will help guide the development of teledermatology programs to increase access to timely, cost-effective care.

Keywords: Telemedicine; teledermatology; mobile teledermatology; primary care provider perceptions; education; access to care; AccessDerm

Introduction

As new delivery models, such as accountable care organizations, encourage the provision of coordinated care, primary care providers (PCPs) will increasingly require access to appropriate, timely, and high-quality specialty care for their patients, which is often difficult in the current landscape. Telemedicine has been identified as a potential tool to address these issues, and teledermatology specifically has been explored as a reliable, cost-effective approach to collaborative, team-based dermatology care that can increase access and reduce wait times [1–3]. Despite these reported benefits, adoption of teledermatology has been limited [4]. Although many studies have examined patients’ experiences and satisfaction with teledermatology [5,6], few have examined referring PCPs’ perspectives [6–8]. More recently, Ogbechie et al. surveyed community health center PCPs and academic dermatologists to explore the benefits and challenges of implementing teledermatology in urban, underserved populations [9]. However, in their study only 9% of PCPs had previously used teledermatology. Until teledermatology is actually implemented into a clinician’s daily work flow, it is often difficult to determine how it may benefit a practice. In addition, as mobile app-based teledermatology has grown in popularity as a simple, feasible, and reliable method for store-and-forward teledermatology [10–15], it is important to understand referring providers’ satisfaction and perceptions regarding this technology as well. Expanding on previous efforts, we explore the perspectives of urban, community health center PCPs who had significant experience using mobile teledermatology to identify opportunities to improve the value of teledermatology programs.

Methods

In April 2014, we distributed an anonymous, web-based survey to 30 PCPs involved in a two-year study evaluating the mobile app-based teledermatology platform AccessDerm (Vignet Corporation, Fairfax, VA) in 11 urban, safety net, primary care centers (federally qualified health center, HIV/AIDS, and public health). All participants were trained to use the app for patients in their health center. Participants provided consent before beginning the survey and reported their agreement with survey statements using a five-point Likert scale. All authors reviewed and tested multiple iterations of the survey to check for clarity, coding errors, and validity of the survey items. Study data were collected and managed using REDCap electronic data capture tools hosted at the University of Pennsylvania [16]. Data were analyzed using descriptive statistics. Statistical analyses were performed using Microsoft Excel (Microsoft Corporation, Redmond, WA) and Stata 13 (StataCorp, College Station, TX). This study was approved by the Institutional Review Boards at the collaborating institutions.

Results

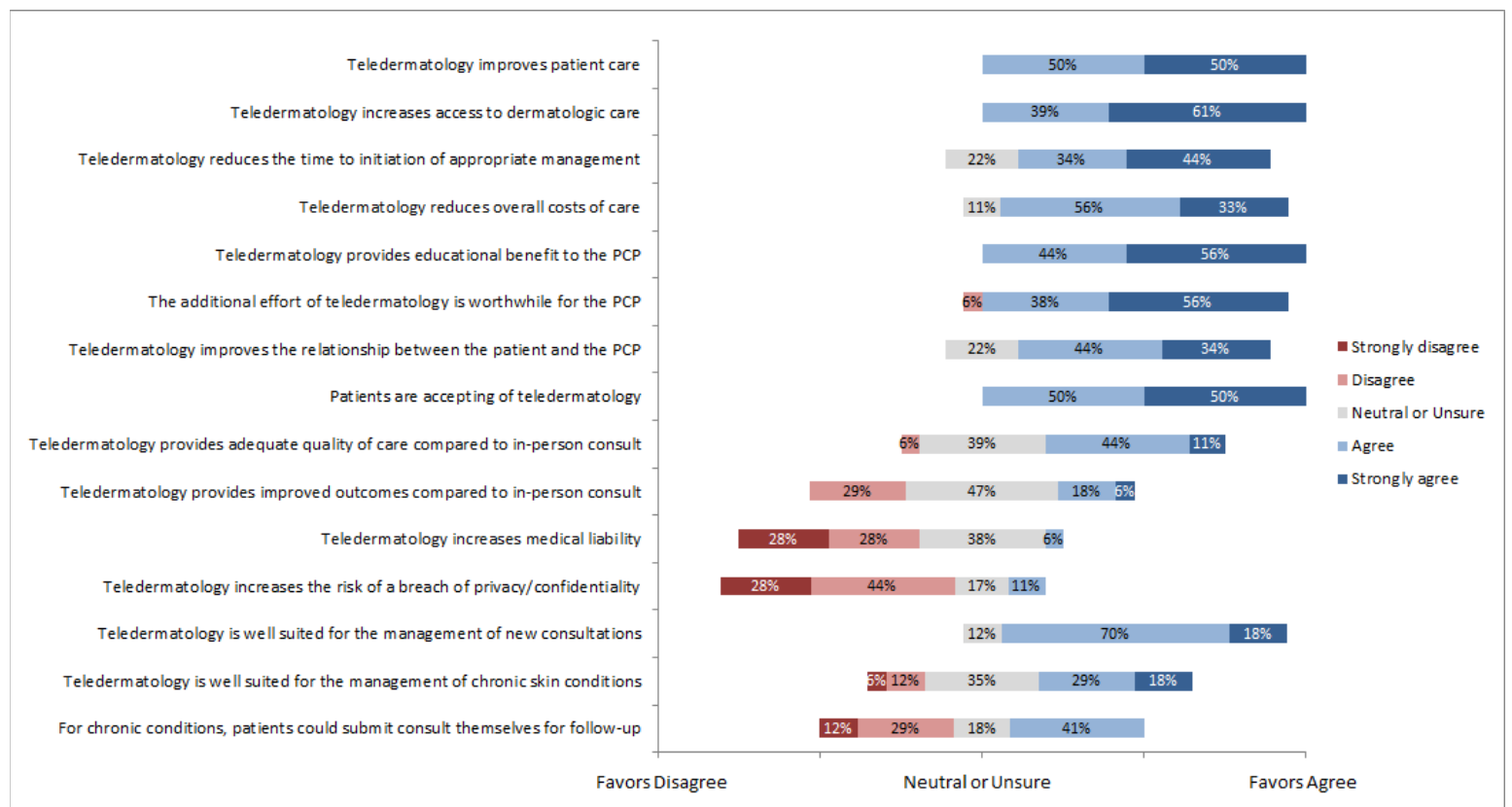


Figure 1. Primary Care Providers' General Opinions on Teledermatology. Participants were asked to report their level of agreement with the statements using a five-point Likert scale. PCP: Primary care provider.

Eighteen PCPs responded (60% response rate), with 3 partial and 15 complete surveys. 100% (18/18) agreed or strongly agreed that teledermatology increases access to dermatologic care, improves patient care, and is acceptable to patients. In addition, 94% (17/18) agreed or strongly agreed that the additional effort of teledermatology was worthwhile and 89% (16/18) felt it would reduce cost. 100% (18/18) agreed or strongly agreed that teledermatology provides educational benefit to the PCP. Furthermore, 80% (12/15) believed that using this particular teledermatology system has enhanced their confidence in management of patients with skin disease. Only 6% (1/18) agreed that teledermatology increases medical liability and 11% (2/18) agreed that it increases risk of a breach in privacy or confidentiality. 93% (14/15) PCPs reported that they would recommend the service to colleagues. 94% (15/16) of PCPs reported that they would prefer a mobile app-based platform over a website-based platform.

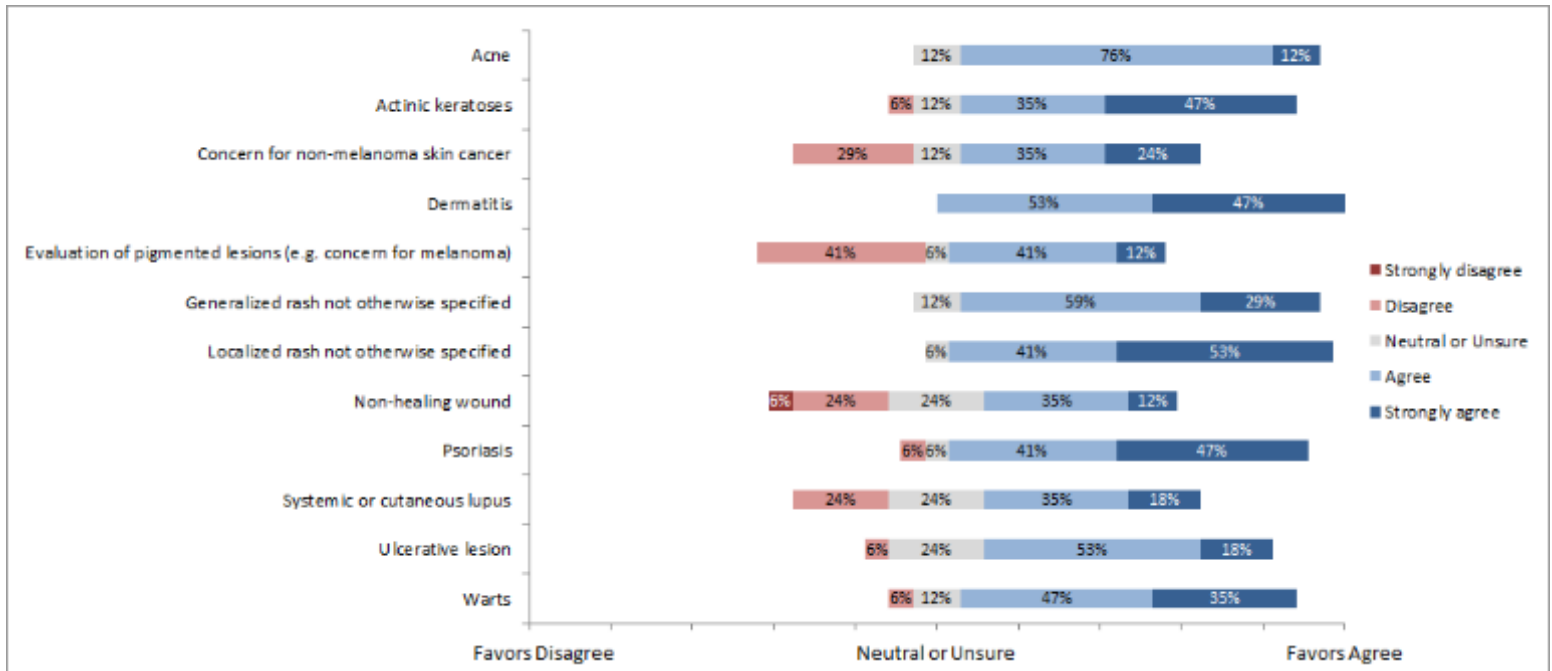


Figure 2. Primary Care Providers' Perceptions of Where Teledermatology Provides Adequate Quality of Care. Participants were asked to report their level of agreement to the following statement using a five-point Likert scale: “Please rate whether you agree or disagree that teledermatology (with the possibility of in-person follow-up) provides adequate quality of care for the following types of chief complaints.” Percentages rounded to the nearest whole number.

PCPs agreed most strongly that teledermatology provided adequate quality of care for acne, dermatitis, and rashes. PCPs responded that teledermatology provided the least adequate quality of care for non-healing wounds, concern for non-melanoma skin cancer, and pigmented lesions.

Discussion

This is one of the first studies to examine referring PCPs' perspectives on the acceptability and utility of mobile app-based, store-and-forward teledermatology and the clinical settings in which teledermatology is most valuable. PCPs had high levels of agreement that teledermatology is worthwhile, increases access to cost-effective, timely care, and provides professional educational value. The educational value of teledermatology is especially exciting, as it suggests that teledermatology may synergistically increase access and enhance the management of dermatologic conditions by PCPs. This finding is also consistent with other studies that have suggested that teledermatology programs may enhance referring provider diagnostic acumen [17].

Compared to previous studies examining website-based platforms [7,8], our findings represent higher levels of satisfaction. Because equipment cost and management, disruptions in workflow, and difficulties photographing skin lesions have been identified as significant challenges with teledermatology [7,9], the simplicity and convenience of the mobile platform offered in our study may explain the high satisfaction.

PCPs were minimally concerned about liability and privacy issues related to teledermatology, which could be related to their experience with a secure platform. These findings are promising, since previous reports have suggested liability and privacy issues are potential barriers to more widespread adoption of telemedicine and teledermatology [9,18,19]. The low concern over liability among the PCPs is also consistent with the fact that there have been few liability claims to date and more recent case law has

suggested potentially increased liability for not using telemedicine as it becomes more common [20]. Nevertheless, a subset of PCPs in our study were still concerned about liability. Increasing clarity about malpractice liability in the setting of telemedicine and about shared liability between the referring provider and teledermatologist will likely help continue to reduce this potential barrier to telemedicine adoption.

PCPs' perceptions about specific dermatologic chief complaints for which teledermatology provides adequate quality of care were closely aligned with those of teledermatologists [1]. However, only 41% of PCPs agreed that patients could learn to submit consultations themselves to manage chronic conditions, suggesting PCPs are not yet comfortable with this modality of care, despite preliminary evidence that it can be effective [21,22].

This study is limited by its small sample size and the fact that the PCPs surveyed primarily cared for an urban, underserved patient population, so the results may not generalize to providers in other practice settings. In addition, providers who participated in the AccessDerm study may have more favorable opinions of teledermatology than those who did not. However, a substantial portion of PCPs would recommend this teledermatology program to colleagues, suggesting that they believe providers who did not participate also would be similarly satisfied.

Our findings highlight that PCPs are highly satisfied with mobile, store-and-forward teledermatology and that they believe teledermatology offers synergistic educational benefit. We hope that these findings will help guide the development and adoption of teledermatology programs to improve access to timely, cost-effective dermatology care.

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