

# Reimbursement for teledermatology in the United States: a review

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**Abstract** Many individuals do not have adequate access to dermatologic care. Teledermatology stands as a potential method of increasing access to dermatologic care. However, one of the biggest obstacles to the expansion of teledermatology is reimbursement. Policies for reimbursement vary based on the insurer, the state, and even the city. In general, there is a lack of federal funding for teledermatology, but various contained systems—such as the Department of Veterans Affairs, Department of Defense, Department of Corrections, and academic medical centers – have used teledermatology sustainably. Whereas live-interactive teledermatology can often qualify for federal reimbursement, store-and-forward teledermatology (with some exceptions) typically cannot. Over the past decade, the number of active teledermatology programs has significantly decreased, and reimbursement difficulty is most likely a contributing factor. More uniform policies by organizations like Medicaid and private payers would enable a greater expansion of teledermatology services.

**Keywords** Teledermatology · Telemedicine · Reimbursement · Dermatology · Access

## 1 Introduction

Many individuals do not have adequate access to a dermatologist. The average wait time to see a dermatologist is more

than 30 days in some areas, and the density of dermatologists is significantly greater in urban areas in comparison with rural areas [1]. Although patients are overall very satisfied when they see their dermatologists, satisfaction has been shown to drop with longer wait times to get an appointment [2]. In a study of Boston-area primary care physicians, 77 % agreed that their urban poor and at-risk patients have difficulty getting dermatology appointments or have long wait times [3]. Teledermatology stands as a potential method of increasing access to dermatological care, especially for geographically isolated populations. However, reimbursement has been cited as one of the largest obstacles to widespread use of teledermatology in the U.S. [4]. In general, there is a lack of federal funding, but various contained systems—such as the Department of Veterans Affairs (VA), Department of Defense (DoD), Department of Corrections (DoC), and academic medical centers – have used teledermatology sustainably [5].

There are two types of teledermatology used today. In live-interactive (LI) teledermatology, a physician talks with a patient through a video-conferencing system. In store-and-forward (SF) teledermatology, a physician reviews images and data that were obtained at another site and stored on a network system. Whereas LI teledermatology can often qualify for reimbursement, SF teledermatology (with some exceptions) typically cannot. This review seeks to further explore the intricacies surrounding the use and reimbursement of teledermatology in the U.S.

## 2 Overall use and reimbursement

In 2003, the American Telemedicine Association's Teledermatology Special Interest Group conducted a survey of its membership to determine the scope of teledermatology

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practice. Sixty-seven programs across 36 states were actively using or starting to use tele dermatology. Most of the programs were affiliated with an academic medical center or the military/VA system, and the latter had more than twice the consult volume as the former. Seventy-eight percent of programs received reimbursement of some kind. Twenty-seven percent of programs were reimbursed by Medicare, 12 % of programs by patient self-pay, and 40 % programs by other sources such as federal grants, DOC, or military/VA contracts. In this survey, Texas and California had the most number of programs. Of note, both of these states had legislation that mandated private payer reimbursement for telemedicine. Also in the survey, twice as many programs offered LI tele dermatology as those that offered SF tele dermatology. Fifty-nine percent of programs offering SF were military/VA based. LI tele dermatology volume was reimbursed 24 % of the time by Medicare, 18 % by Medicaid, 26 % by private payers, 12 % by self-payers, and 20 % by other sources. SF tele dermatology was reimbursed 19 % of the time by Medicare, 13 % by Medicaid, 6 % by private payers, 6 % by self-payers, and 56 % by other sources [5].

### 3 Medicare reimbursement

Just like other LI telemedicine specialties, LI tele dermatology is reimbursed by Medicare in nonmetropolitan areas at the same rates as traditional patient encounters. In Alaska and Hawaii, SF telemedicine and tele dermatology are reimbursed at equal rates to traditional encounters. As with telemedicine in general, no metropolitan tele dermatology whatsoever is reimbursed by Medicare [6].

Concern has been raised because some areas that one would think are rural (nonmetropolitan) are not designated as rural by the federal government. Thus, there is much interest from dermatologists who would like to participate in tele dermatology programs—until they learn that they will not be reimbursed for their efforts [7].

### 4 Medicaid reimbursement

As with other telemedicine specialties, Medicaid reimbursement for tele dermatology varies from state to state. Forty states reimburse for LI telemedicine services. SF telemedicine is reimbursed in a smaller number of states.[8] Focusing on tele dermatology specifically, it is sometimes isolated as one of the few specialties approved for SF telemedicine, such as in California's Medicaid system which singles out tele dermatology and teleophthamology [9].

### 5 Private payer reimbursement

In a 2002 survey of tele dermatology programs, over 100 various private payers reimbursed for telemedicine services. Treating telemedicine services as usual and customary medical practices—without special coding—proved to be the most successful method of procuring reimbursement for the tele dermatology services [10]. As of 2002, Louisiana, California, Oklahoma, Texas, and Kentucky mandated that private payers reimburse for telemedicine services such as tele dermatology.

In regard to private payer reimbursement, a 2002 phone survey conducted by the American Telemedicine Association found that 53 % of telemedicine programs offering billable services receive private payer reimbursement [10]. In regard to SF tele dermatology, Blue Cross insurance in California reimburses it [9].

### 6 Self-pay

A survey conducted by Partners HealthCare showed that patients are willing to pay up to \$35 for improved access via tele dermatology [5]. Evaluating using patient mobile phones for SF tele dermatology, a study among 58 Austrian patients using this technology determined that they would be willing to pay the equivalent of \$31 for this service [11]. Data such as this indicates that patients in an industrialized country such as the U.S. may be willing to pay extra for the convenience and access associated with tele dermatology.

### 7 Closed system reimbursement

In a closed system such as the VA or Kaiser Permanente, the focus is often not on revenue, but rather on decreasing cost by decreasing referral to out-of-network providers, increasing efficiency, and gaining additional customers via expanded access. Therefore, because efficiency is the main priority in VA, DoD, or military settings, both LI and SF tele dermatology can be reimbursed [5]. A retrospective study of implementation of a SF tele dermatology system at one VA hospital found that SF decreased the wait time and the rate of no-shows at the in-person clinic. Interestingly, the percentage of new patients being seen at the in-person clinic increased after tele dermatology implementation, [12] which could mean that tele dermatology implementation can lead to increased revenue at an in-person clinic.

Even in a multicenter private setting such as a university, a closed system can be created to better allow for reimbursement. For example, at the University of Pittsburgh Medical Center (UPMC), tele dermatology for surrounding, distant UPMC teaching hospitals is paid for through a global UPMC service agreement [13]. Therefore, across the various

hospitals of the closed health system, the university is enabled to provide more efficient dermatologic care.

## 8 Other funding sources

In addition to bringing in revenue from the teledermatology itself, there are other methods of profiting from offering this service. For example, the teledermatology program may be a loss leader. While they may lose money from the teledermatology, they can potentially profit from pulling in subsequent in-person appointments, that can involve surgery, cosmetics, or pathology. The University of Nebraska has used a system like this to garner international patients to come for valuable treatment. In addition to customer-driven revenue, governmental grants, such as those from the Office of the Advancement of Telehealth or the Rural Utilities Service, can provide funding for treating rural and uninsured patients [5].

## 9 Physician contracts

Alternatively, physicians may seek out contracts with organizations such as the VA, a military facility, or a primary care clinic, and even work from home doing LI or SF teledermatology. In this way, a physician becomes a contractor who does not have to deal with issues regarding insurances and payment reimbursement. They can receive an hourly salary, and if there are any reimbursement issues, such as private payers refusing to pay and patients being surprised with a bill, the physician may not know or be directly involved [5]. For example, the teledermatology program for patients at Nantucket Cottage Hospital, a Massachusetts non-profit hospital on the island of Nantucket, contracts with physicians in this way.

## 10 Reduction of in-person clinical visits

If teledermatology can reduce the need for in-person dermatology visits, then dermatologists could save money via reduced overhead. Studies have found varying ability of teledermatology to take away the need for in-person visits. With LI, the percentage of dermatology clinic visits avoided has ranged from 44 to 82 % [14]. With SF, the percentage of dermatology clinic visits avoided has ranged from 13–58 % [5]. However even when an in-person visit is not avoided, there may be benefit to earlier diagnosis and triage.

## 11 Cost of teledermatology versus conventional consults

In order to evaluate the benefits of teledermatology, one must understand both the savings and costs associated with it.

While a payer may reimburse the physician for their time and expertise, the reimbursement might not take into account other costs associated with telemedicine, such as the cost of nursing assistance, technology, and overhead. While the tangible equipment may cost a given amount, the necessary technological security to comply with privacy and confidentiality laws such as the Health Insurance Portability and Accountability Act adds additional expense. While the following studies do not take into account capital investments such as those into the technology and training of the technicians, they provide a basic glimpse into the cost-effectiveness of teledermatology.

A 2006 report by the Oregon Evidence-Based Practice Center found that teledermatology is the most-studied clinical specialty for SF telemedicine [15]. A randomized trial comparing SF teledermatology versus conventional consults was conducted at a VA Medical Center in North Carolina. With a cost of \$36.40 per patient, SF teledermatology was more expensive than conventional consults, which had a cost of \$21.40 per consult. However, it was noted that if clinic visit costs, travel costs, or averted clinic visits were higher, teledermatology had the potential for being the cheaper option. Furthermore, at a price of up to \$0.17 per day saved, SF was cost-effective for decreasing the time required for patients to reach a point of initial definitive care [16].

In a 2009 paper, Pak et al. performed a cost minimization analysis for the DoD comparing SF teledermatology with conventional dermatology. When not taking into account lost productivity, SF was more expensive than conventional consults (\$294 vs. \$283). However, when taking lost productivity into account, SF teledermatology had a lower cost compared with conventional (\$340 vs. \$372) [17]. In a 2007 paper, Armstrong et al. determined that LI teledermatology can be an economically viable means of providing dermatological care to remote regions. Comparing the interactive teledermatology practice at Nantucket Cottage Hospital on Nantucket Island and the ambulatory clinics at the Massachusetts General Hospital in Boston, the total hourly operating costs for the Nantucket Island clinic and the Massachusetts General clinic were \$274 and \$346, respectively. Three separate one-way sensitivity analyses showed that, for the cost of the teledermatology practice to equal that of the conventional clinic, the cost of teledermatology technology could increase by more than nine-fold, dermatologists working at the teledermatology practice could be compensated up to \$197 an hour, or the cost of teledermatology clinic space could reach \$57 an hour [18].

## 12 Latest research and recommendations

Between 2003 and 2011, Armstrong et al. found that the number of active teledermatology programs decreased by 40 % to

37 programs. In 2011, 25 programs (69 %) were reimbursed by private payers, 22 programs (61 %) by self-pay, 20 programs (56 %) by Medicaid, 19 programs (53 %) by Medicare, and 17 programs (47 %) by an HMO. The percentage of programs offering SF tele dermatology also changed from 29 to 81 %, while the percentage of LI tele dermatology offered dropped slightly from 59 to 49 % [19].

In 2010 and 2011, seventeen California dermatologists who practiced tele dermatology were interviewed. When asked about the success rate in obtaining reimbursement for their tele dermatology services from Medicaid, the mean success rate was 41 %. When asked how reimbursement success for tele dermatology differed from in-person evaluations for the Medicaid population, all tele dermatologists reported that tele dermatology was reimbursed worse than in-person encounters. In regard to improvement recommendations, 94 % of the tele dermatologists recommended improvements in reimbursement mechanisms. Specific recommendations they proposed included increasing awareness among insurers of “reimbursability” of tele dermatology and more timely reimbursement of tele dermatology services. Indeed, 71 % of the tele dermatologists experienced challenges with obtaining reimbursement. In order to get more dermatologists to serve Medicaid populations with tele dermatology, 94 % of the tele dermatologists believed that financial incentives were the key, such as an uncomplicated reimbursement process and loan repayment programs [4].

A national survey of pediatric dermatologists also came to a similar conclusion. For those that had experience with tele dermatology, most performed non-reimbursed SF consultations. The researchers concluded that overcoming obstacles to reimbursement could improve access to expert pediatric dermatologic care [20]. A 2013 national survey of pediatric dermatologists found that tele dermatology reimbursement success varied based on geography: 44 % in western and southern states, 21 % in midwestern states, 18 % in northeastern states. In this study, 72 % of tele dermatology users worked in academic or managed care environments, and 94 % received salaried compensation [21].

### 13 Conclusion

With the technological evolution that has occurred over the past several decades, the quality and convenience of tele dermatology has never been better. In addition to enhancements in clinical imaging and storage technology, many patients now have powerful cameras on them at all times within their mobile devices. Patients are also more familiar now with network-based medical care, because many hospitals are adopting websites and systems that allow for messaging with their physicians, scheduling of appointments, and sharing of health data such as lab results. With the increase of access to

and familiarity with tele-technology, the simplicity and acceptance of tele dermatology likely also increases.

In many areas of the country, tele dermatology is the only option for reliable access to dermatology services. However, one of the biggest obstacles for the expansion of tele dermatology is reimbursement. More uniform policies by organizations like Medicaid and private payers would enable a greater expansion of tele dermatology services. Also, Medicare’s allowing tele dermatology only in nonmetropolitan areas should be reexamined to ensure that all areas with inadequate dermatological care have access to tele dermatology. Given the large variability in reimbursement from state to state, individual states must examine their own need, distribution, and access to dermatologic care. When expansion of tele dermatology is indicated, it may prove beneficial to create more uniform payment structures within the state for the wide array of private insurances and to re-examine the important role that SF tele dermatology can play in increasing access.

Although further research should be done on the cost-effectiveness of tele dermatology consultations and patient acceptance of this mode of care, tele dermatology has potential to increase access to dermatologic care and contribute to the earlier detection of disease. However, adequate and reliable systems for reimbursement will be necessary to encourage physician and patient participation.

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