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**Abstract**

# Utilizing a Teledermatology Service to Impact Knowledge Acquisition Among Primary Care Providers

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**Abstract**

**Background:** A majority of patients seeking care for skin-related complaints are evaluated by non-dermatologists—in particular, primary care physicians. However, a majority of primary care physicians do not feel confident in their ability to diagnose and manage dermatologic disease, and rates of diagnostic error are high. It has been suggested that a teledermatology service has the potential to improve the dermatologic education of internists. However, this has not to date been rigorously evaluated.

**Objective:** Teledermatology is the use of telecommunications tools to transfer dermatologic information. The most common modality is “store and forward” (SAF). This project proposes to evaluate the impact of a new SAF teledermatology system on a group of referring primary care providers at the Cambridge Health Alliance, in terms of dermatologic knowledge as well as subjective comfort with managing dermatologic conditions.

**Methods:** Recently, access to a teledermatology platform integrated within an electronic medical record system, was rolled out for the first time to several primary care clinics in the Cambridge Health Alliance network. Primary care providers were asked to complete a short survey which consisted of fifteen “Medical Knowledge Self Assessment Program” questions from the dermatology portion of an internal medicine board review course. The providers were also asked to answer subjective questions regarding perceptions about their patients' access to dermatologic care, and their relative confidence and ability to diagnose, manage, and treat different dermatologic conditions. Providers were asked to give their names so that they could be contacted in 12 months, at which time the same survey could be given again to evaluate changes in knowledge and perceptions.

**Results:** A total of 19 primary care providers completed the requested questions and surveys; 17 providers from the initial pool of 19 completed follow-up questions and surveys. The average score on the test of dermatologic knowledge among the participating providers increased from 11 to 11.8 out of a possible 15 questions ( $P=.07$ ). Providers who performed fewer than the mean number of consultations (11 or fewer) had minimal improvement in their overall test scores, while providers who completed 12 or more teledermatology consultations during the study period demonstrated a greater improvement in their test scores. Providers also reported improvement in their perceptions of diagnosing and treating dermatologic problems.

**Conclusions:** Our findings demonstrate a trend towards improved knowledge acquisition among providers using the platform, correlated with the frequency with which they use the platform. In addition, subjective survey responses by referring providers indicated a trend towards improved self-assessed confidence in managing different dermatologic conditions for their patients, as well as decreased barriers to dermatologic care for their patients. Although further studies with larger sample sizes are needed, our findings indicate that telemedicine consultation can potentially be utilized to improve referring provider knowledge and confidence.

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**KEYWORDS**

teleconsultation; telehealth; telemedicine

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