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**Urban *versus* rural utilization of teledermoscopy in self-skin examinations: preliminary results of a cohort study in the states of Oregon and Washington**

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Numerous studies have illustrated a disparity in access to dermatology care between rural and urban/metropolitan communities. One study found an average of 0.085 dermatologists per 100,000 persons in rural regions of the United States, versus 4.11 dermatologists per 100,000 persons in metropolitan regions.<sup>1</sup> The increased utilization of teledermatology as a result of the COVID-19 pandemic presents a valuable opportunity to bridge this inequity. Furthermore, the addition of teledermoscopy use by patients in remote self-skin examinations (SSEs) may enhance triage of patient-selected lesions of concern by providing medical-grade digital dermoscopy images to dermatology providers performing virtual visit triage.

We have collected preliminary results of a cohort study observing the use of teledermoscopy in SSEs for skin cancer surveillance. Dermoscopy images of patient self-selected lesions of concern were photographed using a smartphone dermatoscope attachment (Sklip Inc., Lake Oswego, Oregon) as part of our free device rental program made available to anyone in the States of Oregon or Washington who participates in a virtual visit (e-visit, video, or direct message to their dermatology provider). Digital dermoscopy images taken by patients were submitted to dermatology providers at Oregon Health & Science University (OHSU) for triage via a store-and-forward (SAF) mechanism in a secure electronic medical record (EPIC, Verona, Wisconsin). Remote review of the images by an OHSU dermatology provider prompted a determination to either convert to an in-person consultation for consideration of biopsy, or to observe the lesion until the next scheduled dermatology visit.

To date, 65 dermoscopy images of self-selected lesions have been submitted by 44 participants, averaging 1.5 lesions per participant. Of the 44 participants, 3 reported a residence in a rural zip code (6.8%), whereas 41 reside in an urban zip code (93.2%).<sup>2,3</sup> This observed difference in consumption of free rental smartphone dermatoscopes, stratified by rural versus urban zip codes, mirrors the geographic distribution of the Washington and Oregon State populations per the US Census Bureau (p=0.78, Table 1).<sup>4</sup>

**Table 1. “Urban versus rural engagement with mobile dermoscopy program relative to corresponding population distributions.”**

	urban	rural
Oregon State population, 2010 US Census Bureau (n)	1,043,822	266,922
Washington State population, 2010 US Census Bureau (n)	5,518,692	726,712
Mobile Dermoscopy Study Participants (n)	41	3
Washington State population, 2010 US Census Bureau (%)	14%	5%
Oregon State population, 2010 US Census Bureau (%)	14%	9%
Washington and Oregon population averages, 2010 (%)	13%	7%
Mobile Dermoscopy Study Participants (%)	14%	6%

Though our observed use of smartphone dermoscopy in rural areas is similar to the proportion of individuals living in rural areas in Oregon and Washington States, further increased engagement in rural communities may be an effective mechanism to promote geographical health

equity. In addition to limited access to dermatology providers, individuals in rural communities may be exposed to higher levels of UVR exposure than those in urban areas.<sup>5</sup> It is possible that increased access to teledermoscopy in rural populations may result in earlier detection of skin cancer and reduced travel for in-office evaluation of lesions that are ultimately deemed dermoscopically benign. Current limitations of our study include the small preliminary sample size, lack of randomization, and limited means to broadly advertise the free device rental program.

We believe that increased utilization of teledermoscopy in rural regions may serve as a bridge for the disparities in access to dermatology care. Future applications of this study should include increased sample size and community outreach increasingly targeting individuals in rural communities. Further studies are required to understand the potential barriers, whether technologic or cultural, for smartphone medical device use by rural patients.

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