Dermoscopy is a simple, noninvasive technique that allows the microvascular patterns in PWS to be assessed and recorded. We have observed that the type 1 pattern is readily treated with HMME-PDT and an excellent response can be expected, whereas the type 2 pattern resists treatment. Further studies will increase the sample size, refine the dermoscopic patterns, and study the relationship between different patterns and HMME-PDT results.

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The association of broadband internet access with dermatology practitioners: An ecologic study

To the Editor: Teledermatology may improve dermatologic outcomes in rural communities, but it necessitates high-speed broadband internet for real-time (video visits) and store-and-forward (transmission of high-resolution photographs) methods.[1,2] There lacks a clear relationship between access to local dermatologic care and access to high-speed broadband internet. We assessed this association via geospatial analysis using publicly available federal data. We used an ecologic design to assess the relationship between dermatologist density, broadband prevalence, and demographic data in United States counties.

County-level demographics and physician density for 2015 were obtained from the Area Health Resource File. The Federal Communications Commission's Mapping Broadband Health in America platform was used to obtain broadband speed, defined as internet download speeds of ≥25 megabits (Mbit)/s and internet upload speeds of ≥3 Mbit/s. Adequate internet service was defined as ≥50% of county participants having the option to participate in broadband internet. Maps, regression, and analysis of variance analyses were performed using R 3.4.1 software (The R Foundation, Vienna, Austria).

In 2015, 846 of 3106 counties (27.2%) did not have access to adequate broadband internet, and 2119 of 3106 counties (68.2%)—approximately 49.5 million people or 15.3% of the United States population—had no practicing dermatologist. Of these 2119 counties, 1313 (62.0%), representing 37.7 million people without a practicing dermatologist had access to adequate broadband internet. The other 806 of 2119 counties (38.0%), representing 11.8 million people without a practicing dermatologist, lacked adequate broadband internet access. Thus, 272.4 million Americans live in 947 of 3106 counties (30.5%) with at least 1 practicing dermatologist and accessible broadband internet. Another1.3 million Americans live in 40 of 947 counties (4.2%) in which there is at least 1 practicing dermatologist but poor broadband access (Fig 1). Demographics of the included population are described in Table I.

Counties without broadband and dermatology access were more likely to be rural (odds ratio [OR], 10.3; 95% confidence interval [CI], 8.1-13.2) and designated as a whole-county (OR, 9.1; 95% CI, 6.2-13.6) or partial-county (OR, 2.6; 95% CI, 1.8-3.8) health professional shortage area. Increasing age and unemployment status were associated with living in

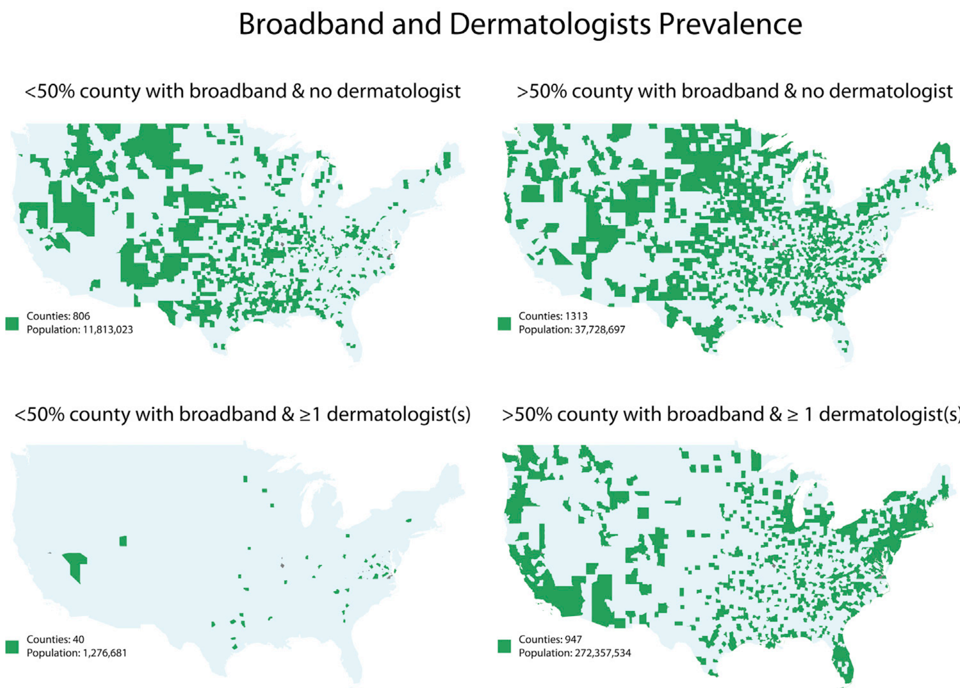

Fig 1. Overlap of broadband and dermatologist access.

a county without a dermatologist (OR, 1.1; 95% CI, 1.10-1.14) or adequate broadband internet (OR, 1.1; 95% CI, 1.06-1.14). Primary care density, income, insurance status, and education were not associated with low broadband access and no dermatologist.

Not enough consideration is given to the technical requirements of teledermatology. In dermatology, rural broadband expansion is necessary to see teledermatology's potential. Government funds have not been fully used in the past to expand this coverage.[3,4] An initial cost-effective approach may be to create telemedicine locations within rural areas as a starting point with broadband access.[3,4] Our results may assist policymakers, lobbyists, and such program administrators in identifying regions most benefitting from broadband expansion and teledermatology locations to guide targeted funding and infrastructure development.

Limitations include use of categorical, binary measurements of broadband access, no data for Hawaii and Alaska, and lack of data on clinics with broadband access in areas with <50% broadband access. As such, researchers still use 50% county-attributable broadband access as a surrogate and benchmark in rural broadband initiatives.[3,5]

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Table I. Summary of dermatologists' practice location based on percentage of broadband access per county in the contiguous United States

Variable*	Stratified percentage of broadband access per county					P value
	<20%	20%-40%	40%-60%	60%-80%	>80%	
Number of counties	458	237	360	703	1348	…
Population (100,000)	8644 (115-75,744)	16,228 (1,925-143,385)	17,280 (753-116,108)	25,671 (918-458,238)	72,151 (764-10,112,255)	<.0001
Dermatologists per county	0 (0-4)	0 (0-4)	0 (0-4)	0 (0-27)	1 (0-454)	<.0001
Counties without dermatologist	440 (96.1)	220 (93.7)	326 (90.6)	549 (78.1)	582 (43.2)	<.0001
Metropolitan status						<.0001
Rural	237 (51.7)	74 (31.2)	91 (25.3)	96 (13.7)	129 (9.6)	
Urban	160 (34.9)	114 (48.1)	201 (55.8)	428 (60.9)	419 (31.1)	
Metro	61 (13.3)	49 (20.7)	68 (18.9)	179 (25.5)	800 (59.3)	
Designated health professional shortage						<.0001
Whole county	239 (52.2)	104 (43.9)	123 (34.2)	156 (22.2)	186 (13.8)	
Part of county	203 (44.3)	123 (51.9)	207 (57.5)	458 (65.1)	950 (70.5)	
Not designated	16 (3.5)	10 (4.2)	30 (8.3)	89 (12.7)	212 (15.7)	
Primary care density (primary care physicians per 100,000)						<.0001
≥40	1 (0.2)	5 (2.1)	7 (1.9)	82 (11.7)	679 (50.4)	
12 to 40	37 (8.1)	44 (18.6)	91 (25.3)	290 (41.3)	335 (24.9)	
4 to 12	143 (31.2)	95 (40.1)	162 (45)	211 (30)	179 (13.3)	
0 to 4	277 (60.5)	93 (39.2)	100 (27.8)	120 (17.1)	155 (11.5)	
Age of country population, y	42.3 (23.5-55.9)	41.8 (25.0-53.9)	41.2 (22.8-54.5)	40.9 (22.6-62.7)	38.9 (22.4-55.9)	<.0001
Income per county, $	42,300 (25,400-81,358)	43,600 (22,900-84,400)	43,200 (23,000-90,300)	46,300 (24,000-89,900)	50,400 (23,340-1,259,000)	<.0001
Percentage of county						
With insurance coverage	66.5 (36.0-81.8)	68.3 (33.3-83.5)	69.0 (14.1-84.5)	70.2 (20.7-83.5)	72.8 (1.0-93.8)	<.0001
With high school diploma	83.6 (57.4-98.4)	84.1 (51.3-95.7)	85.0 (64.1-97.1)	87.2 (60.2-96.8)	88.1 (46.3-97.7)	<.0001
County unemployed	5.5 (1.8-16.9)	5.8 (1.9-15.3)	5.5 (1.8-14.7)	5.3 (1.9-17.6)	5.1 (1.8-24.0)	<.0001

*Continuous data are presented as the median (range) and categorical data as number (%).

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What are the barriers faced by under-represented minorities applying to dermatology? A qualitative cross-sectional study of applicants applying to a large dermatology residency program

To the Editor: Under-represented minorities (URMs) in the United States include individuals self-identifying as Hispanic/Latino, African American, and American Indian/Alaska Native. These groups represent >30% of the general population but <9% of physicians in the United States.[1] Dermatology is the least diverse medical specialty after orthopedics.[2]

Increasing diversity and inclusion in the dermatology workforce carries substantial benefits, particularly, reduction in health care disparities.[3] While perceived barriers of minority medical students considering a career in dermatology has been studied,[4] our group sought to identify dermatology residency applicants' perceptions of diversity within dermatology and specific challenges they face related to applying to dermatology programs.

We performed a cross-sectional study of applicants who applied to the University of Texas Southwestern Dermatology Residency Program through the Electronic Residency Application Service in the 2013-2014 and 2014-2015 application cycles. Three investigators (RV, HJ, SFP) used a structured interview guide to conduct open-ended style telephone interviews from April to January of each cycle. Demographic information was collected, and all interviews were audiotaped and transcribed. Transcripts were coded by 3 independent coders using a 2-step deductive/inductive approach to thematic content analysis.[5] Cohort group analysis identified common themes in responses by URMs and non-URMs.

A total of 878 individuals were eligible to participate, including 112 URM applicants, and 117 applicants agreed to be interviewed. Of these, 44 applicants could be reached by phone, including 13 URMs (Table I). Thus, the response rate was 12% for URMs and 5% for non-URMs. Six themes emerged from analysis. Four themes were associated with barriers to matching: lack of equitable resources, lack of support, financial constraints, and lack of group identity. Two themes were associated with contributors to matching: mentorship and participation in pipeline/enrichment programs. Table II provides selected interview quotes representing perspectives of each theme.

Beyond board scores, our findings suggest mentorship and participation in pipeline/enrichment programs may give an applicant a competitive edge when applying to dermatology irrespective of URM status. Differences in upbringing, defined as social and cultural capital, may also play a role by influencing the availability of role models, support, financial opportunities, and higher education. Faculty who share their time, knowledge, support, and experience and provide opportunities to network can help build on each applicant's social and cultural capital.

Study limitations include single-site study and low response rate. The interview sample was not designed to meet a power calculation but was a best effort at census interviewing. Recall and social-desirability bias are other limitations due to the nature of the study.

In summary, we identified key potential barriers and contributors to success for medical students of various backgrounds applying to dermatology residency programs. Given the disparity between URM dermatologists and URM patients in the United States, it is imperative that efforts be made at the local and national level to improve diversity within the specialty. Future studies using anonymous surveys,