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Improving dermatology residency program website transparency in the era of preference signaling

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To the Editor:

Preference signaling is component of the supplemental application developed by the Association of American Medical Colleges for the 2021-2022 application cycle. Applicants are provided a limited number of preference signals and advised to signal according to applicant and program alignment of goals and academic interests ("fit"). Applicants primarily assess program fit via residency websites. Travel and away-rotation restrictions further emphasize the importance of program websites, with 91% of 2020-2021 dermatology residency applicants utilizing residency websites for information [1]. Nearly 80% of emergency medicine residents cited a program website as an influential factor and 40% decided against applying to a program based on poor website quality [2]. Residency websites are the biggest source of information for interventional radiology applicants, more so than physician mentors and residents [3].

The data available on program websites can be highly variable. When information is missing from a program's website, applicants may use unverified data from anonymous internet forums [4]. This can be problematic as future-residents may base their application, interview, and ranking on unverified information. All medical specialties struggle with data paucity in the residency match process [5-7]. Within dermatology specifically, 43% of current dermatology residents surveyed disclose that increased transparency about their current program would have changed their match list ranking [1]. The addition of preference signaling as an option for Internal Medicine, General Surgery, and Dermatology in the 2021-2022 application cycle amplifies the importance of residency websites as informative resources.

One hundred forty-four Accreditation Council for Graduate Medical Education dermatology residencies and assessed their websites using a scoring rubric ([Table 1](#)) based on recommendations disseminated through journal publication and to the members of the Association of Professors of Dermatology from September to November 2020 [8]. Programs received one point for every scoring item

listed (41-point total). Programs were assessed in August 2020 (pre-) and again in December 2020 (post-), and two-tailed dependent t-test ($P=0.05$) was used to compare. Secondary outcomes were association between total score and program size, research funding, and geographic location. Program size was categorized as small (<6 residents), medium (7-15 residents), and large (>16 residents). Research funding consisted of three groups: top 10, top 11-25, 26+/unranked based on the Blue Ridge Institute for Medical Research listing [9]. Geographic region was assessed (Northeast, Pacific Northwest, Midwest, Southwest, and Southeast). ANOVA and Tukey's Honestly Significant Different Post-Hoc test were utilized for score comparison, with a two-sided alpha of 0.05. Statistical analysis was evaluated via STATA (version 16). Tulane University Institutional Review Board deemed the study exempt.

At initial evaluation, areas of highest online transparency included mission statement, departmental leadership (141/144, 97.9%), and resident/faculty demographics/clinical interests (128/144, 88.9%), (Table 1). Areas of lowest online transparency included psychosocial and/or wellness information (20/144, 13.9%) and application logistics (49/144, 34.0%), (Figure 1). Mean total scores at pre- and post-assessment were 13.1/41 (32.0%) and 14.5/41 (35.4%). There was a significant increase in website total score in the post-assessment (mean

increase: 1.4 points, absolute increase: 3.4%, $P<0.001$). At the post-assessment, no website received a score higher than 31/41 (73.8%), (Figure 1).

The top-10 funded programs [9] had significantly higher pre- and post-assessment website scores than non-top 25 funded programs ([initial: 4.4/41 mean points higher, 10.7% absolute increase, $P=0.01$]; [3 month: 4.0/41 mean points higher, 9.8% absolute increase, $P=0.03$]). There was no difference in total website scores between top 10 versus top 11-25 funded programs at either time point (initial $P=0.7$, three months $P=0.9$).

On pre- and post-assessment, large programs had higher mean scores than medium ([initial: 2.6/41 mean points higher, 6.3% absolute increase, $P=0.02$]; [3 months: 2.8/41 mean points higher, 6.8% absolute increase, $P=0.03$]) and small programs ([initial: 4.8/41 mean points higher, 11.7% absolute increase, $P<0.001$]; [3 months: 5.4/41 mean points higher, 13.2% absolute increase, $P<0.001$]). Medium programs had higher mean scores than small programs ([initial: 2.2/41 mean points higher, 5.4% absolute increase, $P=0.03$]; [3 months: 2.6/41 mean points higher, 6.3% absolute increase $P=0.02$]). Geographic location was not associated with website score at either time point (initial $P=0.4$, three months $P=0.5$).

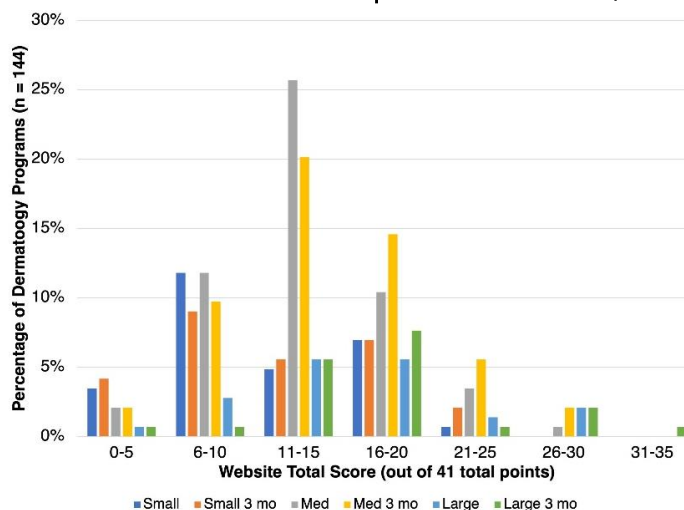


Figure 1. Completeness of program information on residency websites by program size upon initial evaluation and after three months of Association of Professors of Dermatology guideline publications.

*Med, medium sized programs.

Discussion

This 2020 analysis of ACGME-accredited dermatology residency program websites highlights the opportunity for programs to improve website quality. Formal recommendations from specialty-specific organizations can make a modest impact, which may be the case for dermatology program websites. In 2015, Ashack et al. conducted a similar investigation of dermatology residency program website quality using a different rubric. Using the data analyzed in 2015, only 52.2% of residency programs listed their current residents which improved to 79.9% in 2020 [10]. Similarly, interview information was accessible on 64.3% of program websites in 2015 and now has increased to 73.6% of programs [10]. Larger programs and those with the highest research funding may have more resources

to maintain comprehensive websites. Smaller programs and those with less research funding may have less support to update websites.

Dermatology is not isolated in this regard; many medical specialties struggle with data paucity in the residency match process [5-7]. Only 2% of surveyed anesthesiology applicants felt that program websites provided necessary information [2] and plastic surgery applicants admit that a majority of program websites underreported essential information [11]. Similar studies detail less than 25% of thoracic surgery program websites published case volumes and post-residency careers [12], and only 18.6% (75/403) of general, thoracic, and vascular surgery residency websites contained diversity and inclusion information [13]. These topics are paramount for applicants of all specialties to make informed decisions regarding their futures.

This study is limited by the unblinded assessment of program websites, which could be subject to observer bias. Programs without Association of Professors of Dermatology members may have been unaware of the website recommendation publication [8]. Lastly, too little time may have

elapsed (3-months) between pre- and post-assessments for programs to revamp their websites.

Before the COVID-19 pandemic, residency programs struggled to discern applicants' interest given the increasing number of applications each applicant submits [14]. Given the pandemic, many applicants felt pressured to apply to more programs [15,16]. Preference signaling is projected to help programs assess applicants' interest [15,17]. However, with limited travel and away rotation opportunities, applicants rely more heavily on residency program websites to assess fit and signal their preferred programs [1]. The advent of preference signaling may lead to enhanced standardization of residency information sharing [6,18]. Until there is a uniform database of program information, residencies should update their websites at least once or twice yearly. Increased transparency, especially given the ongoing COVID-19 pandemic, is crucial for residency applicants to make informed decisions on their futures.

Potential conflicts of interest

The authors declare no conflicts of interest.

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Table 1. Presence of recommended information on dermatology residency program websites. Dermatology residency program websites with at least one of the listed requirements cited under each domain is listed next to the domain title.

Presence of recommended information on dermatology residency program websites	Initial evaluation %, N (Total 144)	3 Months post evaluation %, N (Total 144)
Application logistics	34.0%, 49	44.4%, 64
Board score cutoff or "no board score cutoff" stated	23.3%, 35	29.9%, 43
Supplemental application or other	9.0%, 13	13.9%, 20
Research requirements	6.9%, 10	9.0%, 13
Emphasis on clinical grades	4.2%, 6	3.5%, 5
Types of research preferred for applicants	1.4%, 2	1.4%, 2
Special considerations	61.8%, 89	63.9%, 92
Away rotators	7.6%, 11	9.7%, 14
Preference of rotators	7.6%, 11	9.7%, 14
Home applicants	9.7%, 14	12.5%, 18
URM	10.4%, 15	12.5%, 18
Applicants without a home program	4.2%, 6	4.2%, 6
IMG applications	18.8%, 27	21.5%, 31
Prior residency/advanced degrees	18.8%, 27	20.1%, 29
Osteopathic program graduates	17.4%, 25	17.4%, 25
Visa holders	31.9%, 46	31.9%, 46
Letters of Recommendation	66.0%, 95	70.8%, 102
Number of letters	51.4%, 74	53.5%, 77
Letters from dermatologists	85.4%, 123	85.4%, 123
Letters from dermatology leadership	6.3%, 9	6.3%, 9
Standardized letter of recommendation	48.6%, 70	47.9%, 69
Mission statement and leadership	97.9%, 141	98.6%, 142
Program's mission statement	70.1%, 101	74.3%, 107
Department leadership	78.5%, 113	81.9%, 118
Residency program leadership	84.0%, 121	88.9%, 128
Diversity initiatives or statement on diversity	24.5%, 35	37.5%, 54
Interview information	61.8%, 89	73.6%, 106
Interview dates	22.9%, 33	39.6%, 57
Interview format	8.4%, 12	19.4%, 28
Number of residency positions	51.4%, 74	63.2%, 91
number of interviews offered	10.4%, 15	16.7%, 24
Preferred communication/etiquette	2.08%, 3	4.2%, 6
Resident involvement in selection process	2.8%, 4	3.5%, 5
Hospital location & patient population	88.2%, 127	89.6%, 129
Clinical site locations	72.9%, 105	77.8%, 112
Subspecialty clinical site information	71.3%, 102	72.9%, 105
Demographic information about population served	23.0%, 33	27.1%, 39
Resident & faculty demographic/clinical interests	88.9%, 128	90.3%, 130
Residents listed	79.9%, 115	82.6%, 119
Faculty listed	85.4%, 123	86.1%, 124
Clinical interests of faculty listed	62.5%, 90	64.6%, 93
Rotation, call, consult, didactic schedule	75.0%, 108	80.6%, 116
Rotation schedule by PGY year	44.4%, 64	49.3%, 71
Call or consult schedule by PGY year	28.5%, 41	31.9%, 46
Didactic schedule	66.7%, 96	70.8%, 102
Elective & research opportunities	70.8%, 102	73.6%, 106
Research requirements/opportunities in residency	58.3%, 84	60.4%, 87
Elective opportunities for residents	54.2%, 78	55.6%, 80
Psychosocial and/or wellness initiatives	13.9%, 20	21.5%, 31
Department-related social events	9.0%, 13	11.8%, 17
Program resources for wellness	10.4%, 15	16.7%, 24