

*Diversity, Equity, Inclusion, and Justice*

# Diversity and Inclusion on General Surgery, Integrated Thoracic Surgery, and Integrated Vascular Surgery Residency Program Websites

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## ABSTRACT

**Background** Increasing diversity in medicine is receiving more attention, yet underrepresented in medicine (UiM) surgeons remain a small fraction of all surgeons. Whether surgical training programs attempt to attract UiM applicants to their programs, and therefore their specialties, through program website information is unclear.

**Objective** To analyze the scope of diversity and inclusion (D&I) related information on US allopathic and osteopathic general surgery, integrated thoracic surgery, and integrated vascular surgery residency program websites.

**Methods** Residency programs were identified through the Electronic Residency Application Service (ERAS) in July 2020. We searched surgical program websites and collected data on the presence or absence of variables labeled “diversity & inclusion” or “underrepresented in medicine.” Variables found on program websites as well as sites linked to the program website were included. We excluded programs identified in ERAS as fellowship training programs. Programs without webpages were also excluded.

**Results** We identified 425 residency programs and excluded 22 from data analysis. Only 75 of the 403 included programs (18.6%) contained D&I-related information. The presence of individual variables was also low, ranging from 4.5% for opportunities related to early exposure to the specialty to 11.1% for a written or video statement of commitment to D&I.

**Conclusions** In 2020, as recruitment and interviews moved entirely online, few US allopathic and osteopathic general surgery, integrated thoracic surgery, and integrated vascular surgery residency programs provided D&I-related information for residency applicants on their program websites.

## Introduction

Diversity has been shown to improve team performance<sup>1,2</sup> and matching of physician and patient background to improve patient outcomes,<sup>2</sup> yet physicians from Black or African American, Hispanic, Latino, or of Spanish origin, and other underrepresented in medicine (UiM) groups, remain low in comparison with the US population. Diversity varies among medical specialties, but the percentage of UiM trainees remains low in most surgical fields.<sup>3</sup> Data from the Association of American Medical Colleges revealed that between 2010 and 2018 applicants to all surgical residency programs who identified as UiM accounted for 21 369 of the 134 158 applicants (15.9%).<sup>3</sup> Of the 134 158 surgical residents, 828 (0.6%) identified as American Indian or Alaska Native; 24 481 (18.2%) as Asian; 10 391 (7.7%) as Black or African American; 9955 (7.4%) as Hispanic, Latino, or of Spanish origin; 195 (0.1%) as Native

Hawaiian or other Pacific Islander; and 58 584 (43.7%) as White.<sup>3</sup> These data compare with 2019 Census Bureau estimates that 18.5% of the population is Hispanic and Latino and 13.4% are Black or African American.<sup>4</sup>

Specialties with low percentages of UiM faculty and applicants may need to employ particular outreach efforts to potential residency applicants in order to improve the distribution of UiM groups into their fields. A 2020 otolaryngology study found that programs with websites that mentioned diversity and inclusion (D&I) demonstrated a significantly higher proportion of female residents at their programs compared to those that did not (44% vs 38%,  $P = .004$ ).<sup>5</sup> In surveys of plastic surgery residents regarding the most important information on program websites, 90% to 95% of survey respondents included faculty profiles and current resident information as 2 of the most valued pieces of information on program websites.<sup>6</sup> These profiles often include photographs of the faculty and residents, which may demonstrate racial or ethnic diversity to applicants. In

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TABLE

Percentages of General Surgery, Integrated Thoracic Surgery, and Integrated Vascular Surgery Residency Program Websites Containing Diversity and Inclusion (D&I)-Related Information

Type of Information	% General Surgery Residency Program Websites (n = 315)	% Integrated Thoracic Surgery Residency Program Websites (n = 27)	% Integrated Vascular Surgery Residency Program Websites (n = 61)	% All Residency Program Websites (n = 403)
Department-specific webpage for D&I	4.1	7.4	8.2	5.0
Written or video commitment to D&I	10.5	14.8	14.8	11.4
D&I-related opportunities for early exposure to surgery	4.1	3.7	6.6	4.5
Link to a non-department-specific D&I office/department	6.7	14.8	6.6	7.2
UiM visiting student rotations	4.4	3.7	6.6	4.7
Any D&I-related information	15.9	33.3	26.2	18.6

Abbreviation: UiM, underrepresented in medicine.

2020, the importance of residency program websites has increased, with the shift from in-person to an entirely virtual recruitment and interview process, and the cancellation of away rotations for medical students. While residency program websites invariably provide details regarding the application process and specific educational details, information regarding program commitment to D&I may be more varied.

In this study, we evaluated US allopathic and osteopathic general surgery, integrated thoracic surgery, and integrated vascular surgery residency program websites for their statements regarding D&I by using defined variables as a surrogate for commitment to program D&I.

## Methods

We defined UiM as those identifying as Black/African American, Hispanic/Latino/of Spanish origin, American Indian/Alaskan Native, or Native Hawaiian or other Pacific Islander.<sup>3</sup> During July 2020, US allopathic and osteopathic general surgery, integrated thoracic surgery, and integrated vascular surgery residency programs were identified using the Electronic Residency Application Service (ERAS). These 3 types of programs were included as there is only a select number of integrated thoracic and vascular surgery residency programs, and general surgery residency programs include exposure to and training in these 2 subspecialties. We identified integrated thoracic surgery residencies as “integrated thoracic surgery residency” or “integrated cardiothoracic surgery residency,” and both were included in this study. Programs identified in ERAS as fellowships rather than residency programs were excluded as not meeting the inclusion criteria.

After a review of the literature on D&I efforts in residency recruitment,<sup>7–9</sup> the study authors selected program website variables for evaluation. These included the following: a department-specific D&I webpage, a statement about a commitment to D&I, D&I-related opportunities for early exposure to their specialty (ie, scholarships/stipends for housing costs during visiting student rotations or summer internship programs), a link to a non-department-specific D&I webpage, and visiting student rotations specifically for UiM students at non-home institutions. The primary author (R.M.) searched websites to evaluate the presence of each variable on each individual website. The prevalence of each variable among these program websites was then calculated in percentages. All data collection and calculations were performed on Microsoft Excel by the same primary investigator.

## Results

A total of 425 allopathic and osteopathic general surgery, integrated thoracic surgery, and integrated vascular surgery residency programs were identified. Sixteen general surgery residency programs did not have websites that could be located, and thus were excluded. Three integrated thoracic surgery programs and 3 integrated vascular surgery programs listed as integrated residencies on ERAS were actually fellowships and were also excluded. Of the remaining 403 programs, there were 315 (78.2%) general surgery residencies, 27 (6.7%) integrated thoracic surgery residencies, and 61 (15.1%) integrated vascular surgery residencies. In total, 75 of the 403 included programs (18.6%) provided some type of information related to D&I within their specialties. This information was most frequently

found as a written mission statement or video, and this was noted in only 46 of 403 program websites (11.4%). All other variables were noted in less than 10% of program websites. These results are displayed in the TABLE.

## Discussion

A 2020 review of all US allopathic and osteopathic general surgery, integrated thoracic surgery, and integrated vascular surgery residency program websites showed that less than 20% (18.6%) contained any D&I information potentially of interest to UiM applicants on their website.

A 2019 review of integrated interventional radiology program websites listed 19 variables for review including content on education and recruitment, but no variable was included that reflected information on D&I.<sup>9</sup> A recent evaluation of the D&I presence among US physical medicine and rehabilitation residency program websites found that only 15 (17%) websites met at least 1 of the 11 predetermined criteria around D&I.<sup>10</sup> In contrast, a 2020 review of general surgery program websites found that 93.8% of programs contained at least one element related to diversity; only 19% contained a specific D&I message.<sup>11</sup> However, this study used different criteria to assess program websites for D&I, including photos and biographies of residents and faculty, which were commonly found among residency programs, partially accounting for variation in reported results. These criteria were not included in our study.

Solely providing a mission statement to improve D&I on program websites may not fully capture the interest of prospective UiM applicants. Opportunities that allow UiM students to experience the culture of a residency program, such as through summer internships or visiting student rotations, may strengthen an applicant's confidence in the program's commitment to D&I. In our study, 4.5% of websites included information on early exposure opportunities for UiM students. To strengthen their UiM student pipeline, general, integrated thoracic, and integrated vascular surgery programs might consider their websites as a platform for advocacy to encourage UiM students to pursue these specialties.

This study is limited by the examination of program websites; surgical residencies may provide additional information about D&I, either through social media (eg, Facebook pages) or direct emails to applicants after they have announced their interest. The authors determined which variables counted as diversity and inclusion content and may have missed others discoverable with different definitions or

search strategies. With only one author reviewing each website, subjectivity in assessing the presence of each variable is possible. In addition, the use of presence or absence as the outcome may limit more nuanced messages on websites. Future studies may focus on how changes in website information, such as the addition of specific program-associated community outreach programs, story profiles from current residents and faculty, or the inclusion of outcome metrics associated with D&I-focused initiatives, might enhance the recruitment of a more diverse residency cohort.

## Conclusions

This study assessed the extent of UiM outreach among US allopathic and osteopathic general surgery, integrated thoracic surgery, and integrated vascular surgery residency programs. Despite the move in 2020 to entirely virtual recruitment and the need to increase the percentage of UiM students entering these fields, program websites infrequently included any information regarding D&I program initiatives.

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