

TO THE EDITOR:

Under-representation of classical hematology training on hematology-oncology fellowship program websites in the United States

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A recent American Society of Hematology Workforce survey revealed that only 5% of adult hematology-oncology fellowship trainees plan to specialize exclusively in classical hematology, a percentage that has remained unchanged for over a decade.¹⁻⁴ With rapid advances in therapeutics for nonmalignant hematologic disorders and growing demand for hematologic care, efforts to increase recruitment into academic classical hematology are of great interest. It has been suggested that combined hematology-oncology fellowship programs de-emphasize training in classical hematology, which may negatively influence recruitment into this field.^{5,6}

Since 2020, fellowship interviews have been performed virtually owing to the COVID-19 pandemic. Consequently, fellowship websites have become the most forward-facing source of information for internal medicine residents applying to fellowship programs. We hypothesized that hematology-oncology fellowship program websites infrequently highlight classical hematology training. To evaluate this hypothesis, we systematically appraised all adult Accreditation Council for Graduate Medical Education (ACGME)-certified hematology-oncology program websites to quantify the level of classical hematology representation on fellowship program websites and elucidate potential areas for improvement.

From September 2021 to January 2022, we identified 172 ACGME-accredited combined adult hematology-oncology fellowship programs for inclusion in this study from the Electronic Residency Application Service (ERAS), the application hub for residents pursuing subspecialty training. We followed the web link provided in ERAS to each fellowship program website. If we could not access the website via the link in ERAS, we recorded the link as “nonfunctional” and manually searched for the correct web link via a publicly available search engine. We evaluated each website based on 4 specific content areas related to classical hematology training and mentorship potential. These included (1) if the program director (PD) listed classical hematology as a specialty interest; (2) if the website mentioned “classical hematology” or a synonymous term, such as “non-malignant hematology,” “general hematology,” “noncancerous hematology,” or “benign hematology”; (3) if the website mentioned specific foci within classical hematology, including hemophilia, coagulation disorders, hemoglobinopathies, or transfusion medicine; and (4) if the program advertised the ability to pursue single-board training in hematology. We recorded all answers as “yes,” “no,” or “unclear” if information on the website was limited.

Of the 172 combined hematology-oncology fellowship programs identified, 90 (52%) website links from ERAS were nonfunctional. The websites for all programs with nonfunctional ERAS links were identified via search engine and included for analysis. Listed specialty interests of PDs are shown in [Figure 1](#). Of 172, only 27 (~16%) hematology-oncology fellowship PDs included classical hematology among their specialty interests, of whom 8 (~5%) listed classical hematology as their exclusive specialty interest, 12 (7%) listed both classical and malignant hematology, 4 (2%) listed classical hematology and solid

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Data are available on request from author, Puja Panwar (ppuja1@jh.edu) and the corresponding author, Rakhi P. Naik (rakhi@jhmi.edu).

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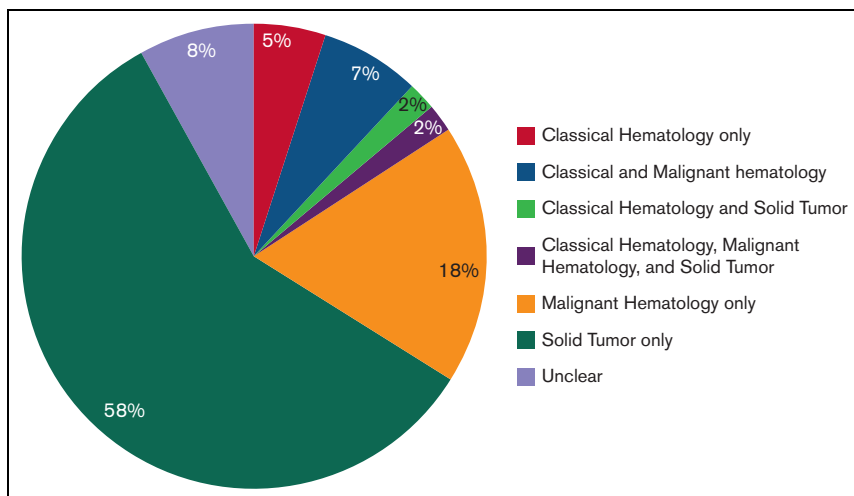


Figure 1. Website listing of specialty interests of fellowship PDs.

tumor, and 3 (1.7%) listed all 3 areas (classical, malignant, and solid tumor hematology) among their specialty interests. The specialty interest of 14 (8%) PDs was unclear, and 100 (58%) identified solid tumor only. Only 57 (33%) of all ACGME hematology-oncology fellowship websites included the term “classical hematology” or a similar term on their website (Figure 2), and only 16 (9%) explicitly mentioned the option of single-boarding in hematology. Interestingly, 93 (54%) fellowship programs mentioned a limited field of classical hematology, such as sickle cell disease or hemophilia, often without including a broader reference to classical hematology training.

Medical trainees have long relied on websites to gather general information about training programs.^{7,8} In this study of ACGME-accredited adult hematology-oncology fellowship training program websites in the United States, we found that only 33% of programs specifically advertised classical hematology training, despite ACGME and American Board of Internal Medicine guidelines that require combined programs to dedicate at least one-third of their curriculum to classical hematology.

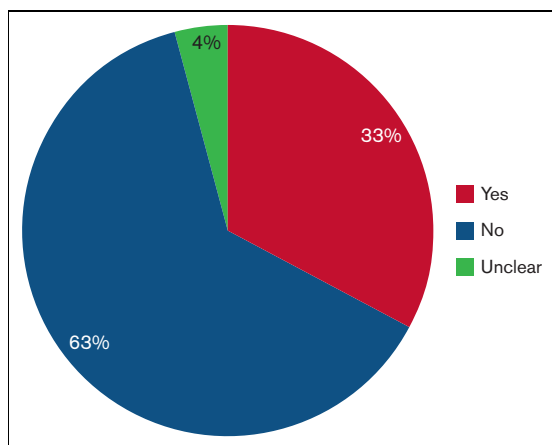


Figure 2. Mention of “classical” hematology or similar term on fellowship website. Includes the terms non-malignant, benign, general, and/or non-cancerous.

Trainee reliance on website content for specialty, program, and rank decisions has been well documented. A focus group study of psychiatry trainees found that website curricular content was a key theme influencing decisions to pursue addiction psychiatry, a subspecialty that, similar to classical hematology, has been experiencing low recruitment.⁹ In emergency medicine, 70% to 85% of applicants have been noted to rely on the website to determine whether to apply to a particular training program, and 41% note that poor website quality influenced their decision not to apply.¹⁰ Importantly, another report noted that 24% of anesthesia residency applicants find program websites as “very” or “most” useful (5-point scale) for deciding on rank order for the match.⁷ Furthermore, trainee reliance on website resources has only increased over the past 2 years owing to the COVID-19 pandemic in the setting of virtual recruitment. Applicants to pulmonary/critical care fellowships noted that website content was the most important criteria used to obtain program information.¹¹

Given the importance of website content on trainee decision making, we propose several modifications that programs can implement to increase recruitment of trainees with a potential interest in classical hematology. First, and most simply, programs can highlight their classical hematology curriculum on their websites. Classical hematology as a specialty may be overlooked by internal medicine applicants, who often consider hematology-oncology to be synonymous with “malignancy.”⁶ This modification not only signals a well-rounded hematology-oncology curriculum but may also emphasize the value of classical hematology and increase recruitment. In fact, previous studies have shown that hematology-focused curricula and/or tracks increase trainee interest and specialization in classical hematology.^{12,13} Although we found that some sites did mention a particular area of classical hematology such as sickle cell disease or hemophilia, these isolated terms, in the absence of a broader emphasis on comprehensive classical hematology training, may inadvertently suggest a limited focus to potential applicants.

Second, websites could include the names and research interests of faculty members with classical hematology specialty interests. Mentorship has been demonstrated to be a critical factor associated with fellows’ plans to enter careers in classical hematology.^{2,14}

Showcasing the breadth of available mentorship signals commitment to classical hematology training and may attract applicants with diverse interests within classical hematology disciplines. Furthermore, listing additional faculty from classical hematology background in leadership may be especially important for programs with PDs whose academic interests lie exclusively in malignant hematology and/or solid tumor oncology (>80% of PDs).^{2,14,15}

Finally, we found that >50% of fellowship programs had nonfunctional links on the ERAS website, suggesting that the program websites are often not a priority in recruitment strategies. Furthermore, a prior appraisal of hematology-oncology fellowship websites noted that program sites frequently lacked comprehensiveness in terms of application and curriculum information,¹⁶ although classical hematology content was not specifically assessed. A future study could include evaluating pertinent information for hematology-oncology applicants and providing guidelines for website content that could be useful to help standardize information delivery to residents.

It is important to note that our analysis of the program websites is limited by the time frame during which we pooled the data. Because data collection was completed through January 2022, it is possible that some websites may have updated their information since that time. Similarly, some websites may not have been updated in several years and may have reflected old information. This further emphasizes the need for programs to continually update their sites with relevant content.

In conclusion, current combined ACGME-accredited hematology-oncology fellowship programs do not routinely highlight classical hematology training on their websites. Although a lack of emphasis on classical hematology training on program websites may be a true reflection of a program's lack of expertise, accurate representation of available training resources is important for fellowship applicants to select programs suited to their interests. Supplementing these interests with robust training and mentorship is the first step toward increased recruitment and retention in hematology careers.²⁻⁴

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