

Hand Society and Matching Program Web Sites Provide Poor Access to Information Regarding Hand Surgery Fellowship

Richard M. Hinds¹ Christopher S. Klifto¹ Amish A. Naik¹ Anthony Sapienza¹ John T. Capo¹

¹Department of Orthopaedic Surgery, New York University Hospital for Joint Diseases, New York, United States

Address for correspondence Richard M. Hinds, MD, Department of Orthopaedic Surgery, New York University Hospital for Joint Diseases, 301 East 17th Street, New York, NY 10003, United States (e-mail: RichardHindsResearch@gmail.com).

J Hand Microsurg 2016;8:91–95.

Abstract

The Internet is a common resource for applicants of hand surgery fellowships, however, the quality and accessibility of fellowship online information is unknown. The objectives of this study were to evaluate the accessibility of hand surgery fellowship Web sites and to assess the quality of information provided via program Web sites. Hand fellowship Web site accessibility was evaluated by reviewing the American Society for Surgery of the Hand (ASSH) on November 16, 2014 and the National Resident Matching Program (NRMP) fellowship directories on February 12, 2015, and performing an independent Google search on November 25, 2014. Accessible Web sites were then assessed for quality of the presented information. A total of 81 programs were identified with the ASSH directory featuring direct links to 32% of program Web sites and the NRMP directory directly linking to 0%. A Google search yielded direct links to 86% of program Web sites. The quality of presented information varied greatly among the 72 accessible Web sites. Program description (100%), fellowship application requirements (97%), program contact email address (85%), and research requirements (75%) were the most commonly presented components of fellowship information. Hand fellowship program Web sites can be accessed from the ASSH directory and, to a lesser extent, the NRMP directory. However, a Google search is the most reliable method to access online fellowship information. Of assessable programs, all featured a program description though the quality of the remaining information was variable. Hand surgery fellowship applicants may face some difficulties when attempting to gather program information online. Future efforts should focus on improving the accessibility and content quality on hand surgery fellowship program Web sites.

Keywords

- ▶ accessibility
- ▶ fellowship
- ▶ hand
- ▶ information
- ▶ internet
- ▶ quality

Introduction

The Combined Musculoskeletal-Hand Surgery Matching Program was created in 1993 to centralize and standardize the hand surgery fellowship application process and is supported by the American Society for Surgery of the Hand (ASSH) and the National Resident Matching Program (NRMP).¹ Programs are designated as either a general surgery-hand surgery

fellowship, an orthopedic surgery-hand surgery fellowship, or a plastic surgery-hand surgery fellowship based on the categorization of the department that supports the program and the specialty board sponsoring accreditation.² Hand surgery programs also may or may not be accredited by the American Council for Graduate Medical Education (ACGME) which serves as the administrating body for uniform fellowship standards.³

received

September 14, 2015

accepted after revision

April 1, 2016

published online

April 28, 2016

© 2016 Society of Indian Hand & Microsurgeons

DOI <http://dx.doi.org/10.1055/s-0036-1583551>.
ISSN 0974-3227.

The Internet is a common resource for applicants researching graduate medical education programs as demonstrated in prior studies.⁴⁻⁸ Additionally, it is most frequently the initial information source for applicants.⁷ However, there is no defined quality or accessibility standards for training program online information. The objectives of our study were to evaluate the accessibility of hand surgery fellowship Web sites and to assess the quality of information provided via program Web sites.

Methods

The ASSH Fellowship Program Directory was accessed on November 16, 2014 and the NRMP hand surgery fellowship directory accessed on February 12, 2015 for review of hand surgery fellowship programs.^{9,10} All ACGME-accredited programs were analyzed. The number of fellowship programs were recorded and compared between the ASSH and NRMP databases for congruency of information. Provided links to program Web sites were explored for accessibility. Program Web site accessibility from outside the databases was assessed by performing a Google search for each program in the format of “program name + hand surgery fellowship.” The Google search engine was used in our study because it is the most commonly used search engine.¹¹ The first 10 search results were assessed to identify direct links to hand fellowship Web sites. All Google searches were performed on November 25, 2014.

The quality of accessible Web site information was assessed utilizing methods described in similar investigations.^{7,12} The quality of fellow education information was evaluated using a dichotomous assessment for the presence of information regarding didactic learning (lecture series),

journal club, research requirements, call responsibilities, rotation schedule, operative case descriptions, office/clinic time, required meetings or courses, and list of teaching faculty. The quality of recruitment information was evaluated using a dichotomous assessment for the presence of information regarding program description, application requirements, link to NRMP Web site, program contact email, current and/or past fellows, as well as salary and benefits. Data analysis was performed using descriptive statistics.

Results

A total of 75 fellowship programs were initially identified from the NRMP hand surgery fellowship directory and 82 programs were identified from the ASSH Fellowship Program Directory including 7 programs not listed in the NRMP hand surgery fellowship directory. One program was not accredited by the ACGME and excluded. The remaining 81 ACGME-accredited fellowship programs were included for analysis. Of the 81 programs, 1 was a general surgery fellowship, 15 were plastic surgery fellowships, and 65 were orthopedic surgery fellowships. The ASSH Fellowship Program Directory presented links to 72 (89%) of program Web sites. Eleven (15.3%) links connected to nonfunctioning Web sites, 6 (8.3%) links connected to Web sites that provided no program information, 29 (40.3%) links required multiple steps to access program information, and 26 (36.1%) links directly connected to program information (► Fig. 1). The NRMP hand surgery fellowship directory had links to 39 (48%) of program Web sites with all links requiring multiple steps to access program information (► Fig. 2). No direct program links were found in the NRMP hand surgery fellowship directory. A Google search independently revealed direct links to 70 (86%) program Web

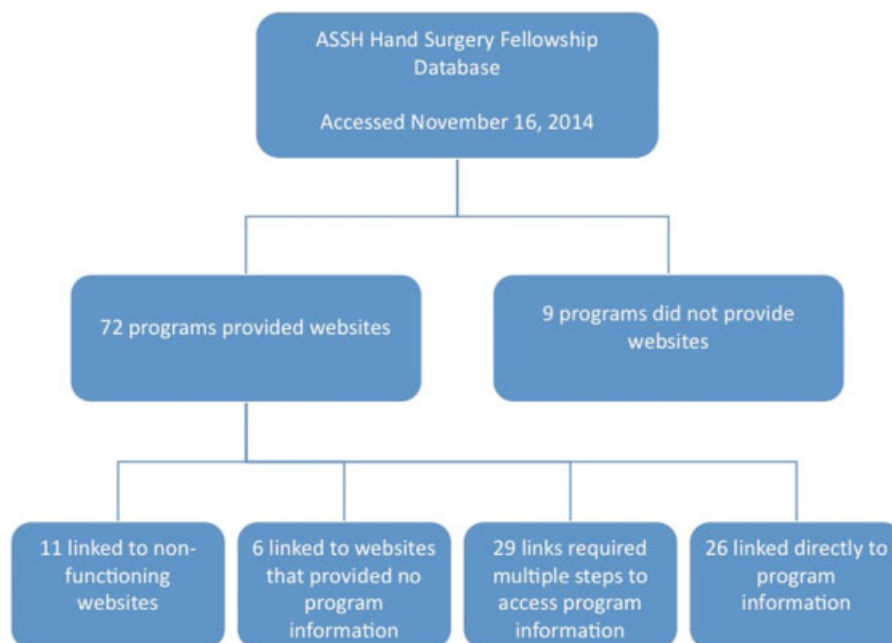


Fig. 1 Flowchart illustrating hand surgery fellowship program web site accessibility via links presented in American Society for Surgery of the Hand, Fellowship Program Directory.

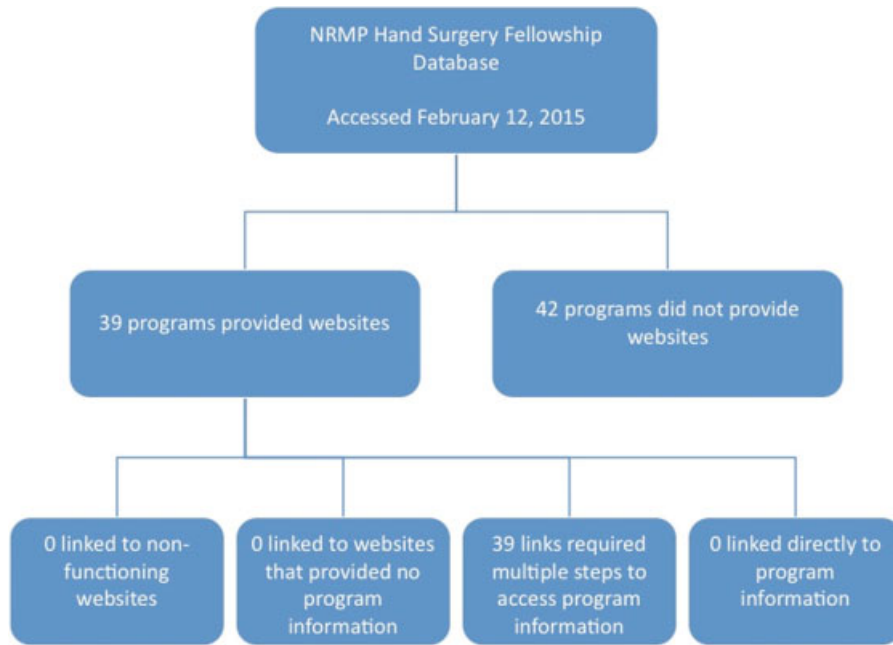


Fig. 2 Flowchart illustrating hand surgery fellowship program web site accessibility via links presented in National Resident Matching Program, hand surgery fellowship directory.

sites. Of the remaining 11 Web sites not accessible via the Google search, 2 were accessed via the ASSH Fellowship Program Directory for a total of 72 programs for which fellow education and recruitment information could be assessed.

Fellow education information varied greatly in its presentation on program Web sites. The most consistently presented component of fellow education information was research requirements, presented on 54 (75%) Web sites. Didactic learning information (68%) and a list of teaching faculty (64%) rounded out the top three most commonly presented components. A description of meetings or courses previous fellows attended was the least presented information, appearing on only 15 (21%) program Web sites. ► **Table 1** summarizes fellow education information.

All 72 fellowship Web sites analyzed presented a description of the program with 70 (97%) Web sites describing application requirements. A total of 61 (85%) Web sites displayed a program contact email. A link to the NRMP Web site (28%) and salary/benefits (28%) information were the least presented components of fellow recruitment information. ► **Table 2** summarizes fellow recruitment information.

Of the 72 program Web sites, 3 (4%) presented a fifth of the information queried in our study, 17 Web sites (24%) presented between one and two-fifths of the information, 32 Web sites (44%) presented between two and three-fifths of the information, and 17 Web sites (24%) presented between three and four-fifths of the information. Only three (4%) of the Web sites presented more than four-fifths of the assessed information. A single fellowship Web site featured 93% (14/15) of the assessed fellow education and recruitment information, though no fellowship Web sites presented all 15 items of fellow education and recruitment information. ► **Fig. 3** illustrates these data.

Table 1 Number of hand surgery fellowship web sites presenting components of fellow education information (n = 72)

Criteria	n (%)
Didactic learning	49 (68)
Journal club	39 (54)
Research requirements	54 (75)
Call responsibilities	23 (32)
Rotation schedule	27 (38)
Operative case descriptions	35 (49)
Office/clinic time	27 (38)
Meetings/courses	15 (21)
List of teaching faculty	46 (64)

Table 2 Number of hand surgery fellowship web sites presenting components of fellow recruitment information (n = 72)

Criteria	n (%)
Program description	72 (100)
Application requirements	70 (97)
Link to nrmp.org	20 (28)
Program contact email	61 (85)
Current/past fellows	23 (32)
Salary/benefits	20 (28)

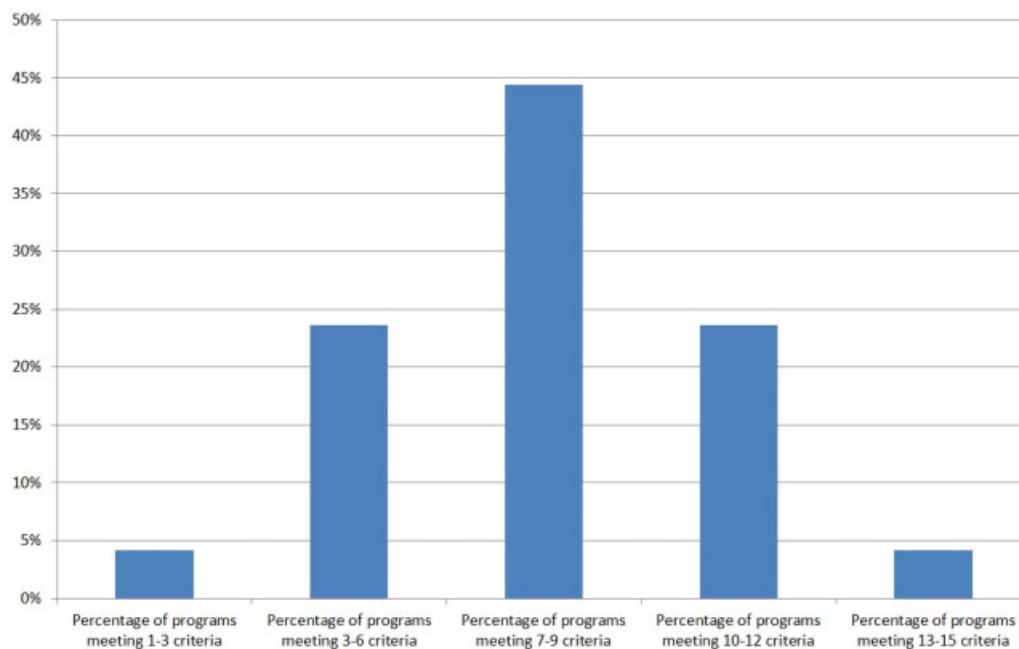


Fig. 3 Proportion of hand surgery fellowship web sites meeting fellow education and recruitment information criteria.

Discussion

The objectives of our study were to assess the accessibility and quality of information provided on hand surgery fellowship Web sites. Similar studies regarding online surgical fellowship information have been previously published. Mulcahey et al examined sports medicine fellowship Web sites in terms of accessibility and content.¹² They found that the sports medicine society Web site directly linked to fellowship program information in only 3% of programs. However, an Internet search using Google yielded direct links to 71% of program Web sites. The most consistently described component of fellow education was didactic instruction presented on 64% of program Web sites, while 100% of Web sites provided a program description for fellowship recruitment.

Davidson et al evaluated the quality and accessibility of online information for pediatric orthopedic surgery fellowships.⁷ No program links were provided on the pediatric orthopedic society Web site. Their Google search supplied direct links to 68% of the programs. Research requirements were the most commonly described component of fellow education with 83% of program Web sites presenting this information. Program description information was present on 100% of Web sites for the recruitment of fellows.

Web site quality results in our study were similar to the previously published studies. In our study, program description information was found on 100% of accessible program Web sites. Similar to the pediatric orthopedic surgery fellowship study, we found the most frequently presented component of fellow education information to be research required during the fellowship training. This finding may indicate the priority placed on furthering knowledge through research as emphasized among pediatric orthopedists and hand surgeons.

Web site accessibility in our study compared favorably to those presented in the aforementioned studies. The ASSH Fellowship Program Directory presented direct links to 36.1% of program Web sites. Additionally, the Google search performed in our study yielded direct links to 86% of program Web sites. Etiology for these difference fellowship Web site accessibility between hand surgery fellowships and pediatric orthopedic and sports medicine fellowships are likely multifactorial. In general, the ASSH Web site acts as fundamental resource regarding hand surgery topics for general surgery, orthopedic surgery, and plastic surgery residency graduates. As such, it caters to a greater breadth of potential fellows and may be updated more often and thoroughly than orthopedic subspecialty fellowship Web sites.

There is a growing importance regarding the accessibility and quality of online information concerning hand surgery fellowship programs as hand surgery fellowship continues to be a popular choice for postresidency training. According to the NRMP, 160 hand surgery fellowship positions among 80 programs were available to applicants during the 2013 application cycle.¹³ However, there has been an increase in the number of applicants per available positions. Thus, residents may seek to gather sufficient program information when preparing for the competitive application process.¹⁴ Interestingly, the results of our study indicate that online hand fellowship information may be available in a fairly normalized distribution with the majority of programs featuring just less than 45% of the information reviewed in our study (► **Fig. 3**). Additionally, only three (4%) programs presented at least 80% of the reviewed quality information suggesting room for improvement.

The ASSH Web site has a dedicated section regarding fellowship information that includes a fellowship directory, list of unfilled positions for the upcoming year, and the

Universal Hand Surgery Fellowship Application. Despite the ASSH fellowship directory being a likely first stop for applicants, only a third of programs provided direct links to fellowship Web sites. Although the ASSH does state on its Web site that it makes no representations as to the accuracy of the information provided or the completeness of its fellowship list, it does provide an email address for program directors to update or add fellowship information to the directory.⁹

The NRMP Web sites hosts the hand fellowship application system and features the NRMP hand fellowship directory. However, these resources are only available to registered hand fellowship applicants from February 4, 2015 until Match Day, May 27, 2015 for the 2014 to 2015 application cycle.¹⁰ Registration requires appropriate academic standing from an orthopedic surgery, plastic surgery, or general surgery residency. Despite hosting the application system, the NRMP hand surgery fellowship directory demonstrated the poorest fellowship program Web site accessibility compared with the ASSH Fellowship Program Directory and Google search. Less than half of the programs were accessible via links with all accessible Web sites requiring multiple steps to access program information.

The current study has some limitations. First, the Internet is a rapidly evolving resource with information continuously updated and changing. The findings of our study were obtained at a specific moment in time and may not reflect the accessibility or quality of information available today. Second, our study only featured a binary evaluation of fellowship information quality. A multichotomous assessment may have further delineated the variable Web site quality. Finally, our study included only ACGME accredited hand surgery fellowship programs. Inclusion of other programs may have yielded somewhat different results. There were also several strengths to our study. Our study extensively evaluated online information available to registered hand surgery fellowship applicants and featured review of the NRMP hand fellowship directory. Additionally, our Google search and review of the ASSH Fellowship Program Directory provided examination of the online information available to those not currently registered for the hand surgery application process.

In conclusion, our study highlights some of the difficulties applicants may face when gathering online program information in preparation to apply for hand fellowships. Program Web sites can be accessed from the ASSH directory and, to a lesser extent, the NRMP directory. However, a Google search proved to be the most reliable method to access fellowship information. Of assessable programs, all featured a program description while a listing of past/present fellows and expected salary were less consistently presented. Future efforts should focus on improving the accessibility and content quality on hand surgery fellowship program Web sites.

Note

The investigation was performed in the Department of Orthopaedic Surgery, New York University Hospital for Joint Diseases, New York, United States.

Conflict of Interest

None.

References

- 1 Dy CJ, Fabricant PD, White B, Shah A, Patel A. A helping hand for finding the right fellowship match. *Plast Reconstr Surg* 2013; 132(4):696e
- 2 Goldfarb CA, Lee WP, Briskey D, Higgins JP. An American Society for Surgery of the Hand (ASSH) task force report on hand surgery subspecialty certification and ASSH membership. *J Hand Surg Am* 2014;39(2):330–334
- 3 Daniels AH, Grabel Z, DiGiovanni CW. ACGME Accreditation of Orthopaedic Surgery Subspecialty Fellowship Training Programs. *J Bone Joint Surg Am* 2014;96(11):e94
- 4 Silvestre J, Tomlinson-Hansen S, Fosnot J, Taylor JA. Plastic surgery residency websites: a critical analysis of accessibility and content. *Ann Plast Surg* 2014;72(3):265–269
- 5 Reilly EF, Leibbrandt TJ, Zonno AJ, Simpson MC, Morris JB. General surgery residency program websites: usefulness and usability for resident applicants. *Curr Surg* 2004;61(2):236–240
- 6 Perron AD, Brady WJ. Sources of information on emergency medicine residency programs. *Acad Emerg Med* 2002;9(12): 1462–1463
- 7 Davidson AR, Murphy RF, Spence DD, Kelly DM, Warner WC Jr, Sawyer JR. Accessibility and quality of online information for pediatric orthopaedic surgery fellowships. *J Pediatr Orthop* 2014;34(8):831–834
- 8 Rozental TD, Lonner JH, Parekh SG. The Internet as a communication tool for academic orthopaedic surgery departments in the United States. *J Bone Joint Surg Am* 2001;83-A(7):987–991
- 9 American Society for Surgery of the Hand. Fellowship Program Directory. Available at: <http://www.assh.org/Member-Resources/Fellowship-Program-Directory>. Accessed November 16, 2014
- 10 National Resident Matching Program. Combined Musculoskeletal-Hand Surgery Matching Program. Available at: <http://www.nrmp.org/fellowships/combined-musculoskeletal-hand-surgery-matching-program-cmmp-match/>. Accessed February 12, 2015
- 11 Experian Hitwise. Search engine analysis. Available at: <http://www.experian.com/marketing-services/online-trends-search-engine.html>. Accessed November 16, 2014
- 12 Mulcahey MK, Gosselin MM, Fadale PD. Evaluation of the content and accessibility of web sites for accredited orthopaedic sports medicine fellowships. *J Bone Joint Surg Am* 2013;95(12):e85
- 13 NRMP. Results and Data. Available at: <http://www.nrmp.org/wp-content/uploads/2013/08/National-Resident-Matching-Program-NRMP-Results-and-Data-SMS-2014-Final.pdf>. Accessed October 30, 2014
- 14 Brunworth LS, Chintalapani SR, Gray RR, Cardoso R, Owens PW. Resident selection of Hand Surgery Fellowships: a survey of the 2011, 2012, and 2013 Hand Fellowship graduates. *Hand (NY)* 2013;8(2):164–171