Analysis of Accredited Gastroenterology Fellowship Internet-Available Content: Twenty-Nine Steps Toward a Better Program Website

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Abstract

Goal To assess publicly available content derived from official websites of accredited gastroenterology fellowship programs, specifically evaluating data pertinent to prospective applicants.

Background The Internet provides access to key information for applicants applying to gastroenterology fellowship, particularly as competition drives applicants to apply to a large number of programs. Thus, it is important for fellowship program websites to be up to date and contain accurate and pertinent information.

Methods Twenty-nine variables, determined as important website content on the basis of prior published website analyses and from surveys of preferences, were extracted from the relevant websites of all accredited gastroenterology fellowships in the USA. Results were binary—i.e., a website either contained or did not contain each item.

Results A total of 178 websites were evaluated. The mean number of online content items was 14.1 (± 3.2 SD) out of a possible 29 (47.1%). Program coordinator contact information, application information, and the number of current fellows were accessible on > 80% of websites. In contrast, the typical number and types of procedures performed by fellows and number of hospitals covered by fellows on call were found on < 10% of websites. Analysis revealed that 23.2% of lifestyle, 48.3% of training, and 59.6% of program variables were met.

Conclusions Gastroenterology fellowship websites lacked important content. Websites had a lower mean percentage of lifestyle content compared to training and program-related items. An organized website containing relevant information may not only attract qualified applicants but also avert unnecessary email inquiries and inappropriate applications. This study may provide guidance to gastroenterology fellowship programs seeking to improve their websites for applicants.

Keywords Gastroenterology · Fellowship · Website · Content · Comprehensiveness

Introduction

Applying for gastroenterology fellowship is competitive; in 2018, 759 applicants applied and 489 matched, yielding a 64.4% match rate [1]. Applicants usually apply for gastroenterology fellowship approximately 1 year prior to the position start date through the Electronic Residency Application Service (ERAS) [2]. Due to the intense competition, applicants often apply to a large number of programs, many with which they are unfamiliar. Since the Internet is an essential source of information for applicants, it is important for fellowship program websites to be up to date, containing accurate and pertinent information [3–5].

While there have been prior studies of other residency and fellowship programs that have evaluated program-specific websites, none to date have examined gastroenterology fellowship websites. The purpose of this study was to assess

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gastroenterology fellowship program online content, specifically evaluating those variables that would be pertinent to prospective applicants.

Materials and Methods

Twenty-nine content variables (Table 1), derived from published website analyses of training programs in other medical disciplines [6–12] and from surveys identifying which information is most valued by applicants [4, 14], with the addition of gastroenterology-specific content, were divided into training (10 variables related to curriculum quality and depth, teaching modes, and details of schedules), program (11 variables including the program size and other general characteristics), and lifestyle (8 variables concerning remuneration, social events, call time, and the type of career path fellows followed after graduating). They were evaluated separately by two authors (JHR and AML) reviewing websites of all 189 gastroenterology fellowships accredited by the Accreditation Council for Graduate Medical Education (ACGME) as of August 2018. Discrepancies in observations were resolved by consensus. Programs without websites could not be analyzed and were excluded from the study. The number of total fellows per program and fellowship positions offered per year was collected from the ACGME's Accreditation Data System. Programs with ≥ 9 total fellows (median) were classified as *large*, whereas programs with < 9 were classified as *small*. The number of content items present on program websites was compared

by program size and whether a program contained a 4th year advanced training position using Wilcoxon rank-sum tests. Results are expressed as mean $\pm$ standard deviation (SD) unless otherwise stated. Results were binary, based on whether each item was included or not included in each program's publicly available website.

Results

A total of 178 publicly accessible gastroenterology fellowship websites were evaluated. Programs had a mean of 3.0 ± 1.3 gastroenterology fellowship positions available per year (median = 3) and a mean 9.0 ± 4.4 (median = 9) total fellows per institution. There were 93 large programs (52.2%) with ≥ 9 fellows enrolled across years. The greatest number of programs were found in the Northeast US Census region (67 programs), compared to the fewest in the West (26 programs). Fifty-four programs (30.3%) indicated availability of a 4th year of advanced gastroenterology training.

Content Variables

The mean number of online content items present per gastroenterology fellowship website was 13.2 ± 4.2 out of a possible 29 variables (45.6%). The greatest number of items included by any fellowship website was 22 (1 program), with 8 websites containing < 5 of the 29 variables. Hospital affiliation, program coordinator contact information, application requirements and information, and the

Table 1 Twenty-nine online content items assessed, divided into training, program, and lifestyle categories

Online content variables	
<i>Training</i>	
Away rotation information	Teaching opportunities for fellows
Didactic schedule	Typical number and types of procedures performed by fellows
Duration and types of rotations	Whether liver transplants are performed at the institution
Faculty members listing	Whether or not advanced endoscopic procedures are performed in training
Research listing/information	Whether training is by hospital-employed and/or private practice physicians
<i>Program</i>	
Alumni listing	Number of positions available
Application requirements/information	Program coordinator contact
Current fellow listing	Program director contact
Fourth year advanced training	Recent board pass rates
Hospital information	Synopsis/general description of the fellowship
Number of current fellows	
<i>Lifestyle</i>	
Academic stipend for books, travel, research	Post-fellowship placement
Call roster for first years	Salary and benefits
Formal conference hours	Social events for trainees/social events open to the community
Number of hospitals covered on call	Typical call frequency/schedule of fellows

number of fellows in 2018–2019 were accessible on more than 80% of program websites (Fig. 1). In contrast, only 5 of the 29 content variables were included in < 10% of program websites (Figs. 1, 2, 3): 9.6% of programs (17/178) included conference hours; 9.0% (16/178) provided an example of typical numbers and types of procedures performed by fellows; 6.7% (12/178) explained whether fellows were supervised solely by hospital-employed physicians, private practice physicians, or both; 5.1% (9/178) provided board pass rates of recent graduates; and only 2.8% (5/178) listed the number of hospitals covered by fellows when on call. Only 23.2% of lifestyle variables (1.9 ± 1.3 out of 8) were listed per program website,

compared with 48.3% of training (4.8 ± 1.8 out of 10) and 59.6% of program variables (6.6 ± 2.1 out of 11).

Comparison of Online Content

Large programs listed a significantly greater number of online details compared to small programs (mean 14.3 ± 3.4 vs. 12.1 ± 4.6 out of 29 items; $p = 0.001$). Programs with optional 4th year advanced gastroenterology training contained significantly more online criteria, with a mean of 15.2 ± 3.0 (52.6%) variables present, compared to 12.4 ± 4.3 (42.6%) of programs without 4th year advanced training ($p < 0.001$).

Fig. 1 Percent and number of fellowship websites containing each of eleven program-related online content variables

Fig. 2 Percent and number of fellowship websites containing each of ten training-related online content variables

Fig. 3 Percent and number of fellowship websites containing each of eight lifestyle-related online content variables

Discussion

Applicants to any specialty use the Internet extensively for program-specific information when applying for residency or fellowship training [5–10, 13]. In assessing the utility of residency and fellowship websites, several surveys of applicants have emphasized the incompleteness of pertinent information, especially concerning schedules, post-residency placement, and employment benefits [3, 4, 14]. In this study, although many websites contained information regarding hospital affiliation(s), faculty listings, program coordinator contact information, application requirements, and the total number of then-current fellows, many of the gastroenterology websites reviewed were frequently lacking in other important aspects. For example, information regarding the nature and volume of didactic teaching, typical numbers and types of procedures performed by fellows, the number of hospitals covered by the on-call fellow, the names and contact information of current fellows, the board pass rates of recently graduated fellows, and details of post-fellowship placement were rarely included.

Interestingly, large programs were associated with a significantly greater number of online criteria met per program compared to small programs, possibly due to funding and personnel availability in larger programs enabling routine website maintenance. Moreover, gastroenterology programs had a significantly lower mean percentage of lifestyle content items present compared to training and program items, possibly due to a perceived lack of importance or an unwillingness to display such information.

Previous studies surveying residency applicants found that content included in a program website rather than its

aesthetic qualities is of greater importance to applicants [4]. When assessing how integral websites are to applicant decision making, Chu et al. found that anesthesia residency applicants rely heavily on anesthesia program websites in order to evaluate relative program merit, prepare for interviews, and eventually formulate a rank list [14]. This was similarly noted with other specialties including emergency medicine, orthopedic surgery, otolaryngology, microsurgery, and general surgery [5, 7–10, 13].

Limitations to this study included subjectivity in selecting items to evaluate. Many of the 29 variables were based on prior studies of other fields [6–12], as well as surveys identifying which information is most valued by applicants [4, 14]. The variables were chosen by the authors, which included medical students, a gastroenterology fellow, and a gastroenterology attending/program director. Inclusion of a resident author, particularly one applying to gastroenterology fellowship, may have altered certain variables. Furthermore, some newly accredited programs did not have available websites and could not be included in this study. Finally, data collection occurred over several months, during which time websites may have been updated.

Gastroenterology fellowship program websites are a source of important information, providing a valuable resource for residents applying to gastroenterology fellowship. Given the Internet's omnipresence, programs may benefit from reviewing their websites through the eyes of applicants. Many gastroenterology program websites do not provide information that applicants may deem as essential. An organized website containing relevant information may not only attract applicants but also prevent unnecessary email inquiries and inappropriate applications. While

inclusion of all 29 variables is not meant to be presented as a standard, this article may provide guidance to individual gastroenterology fellowship programs on specific areas on their websites that could be improved.

Author's contribution JHR contributed to study concept and design; acquisition of data; analysis and interpretation of data; drafting of the manuscript; critical revision of the manuscript for important intellectual content; statistical analysis. AEME contributed to study concept and design; analysis and interpretation of data; critical revision of the manuscript for important intellectual content; study supervision. MB contributed to study concept and design; analysis and interpretation of data; drafting of the manuscript; critical revision of the manuscript for important intellectual content; study supervision. AML contributed to acquisition of data; analysis and interpretation of data; critical revision of the manuscript for important intellectual content. SFM contributed to study concept and design; analysis and interpretation of data; drafting of the manuscript; critical revision of the manuscript for important intellectual content; study supervision.

Compliance with ethical standards

Conflict of interest The authors have no potential conflicts of interest to disclose.

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