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Clinical Study

The Internet as a communication tool for orthopedic spine fellowships in the United States

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Abstract

BACKGROUND CONTEXT: Orthopedic residents seeking additional training in spine surgery commonly use the Internet to manage their fellowship applications. Although studies have assessed the accessibility and content of Web sites in other medical specialties, none have looked at orthopedic spine fellowship Web sites (SFWs).

PURPOSE: The purpose of this study was to evaluate the accessibility of information from commonly used databases and assess the content of SFWs.

STUDY DESIGN: This was a Web site accessibility and content evaluation study.

METHODS: A comprehensive list of available orthopedic spine fellowship programs was compiled by accessing program lists from the SF Match, North American Spine Society, Fellowship and Residency Electronic Interactive Database (FREIDA), and Orthopaedicsone.com (Ortho1). These databases were assessed for accessibility of information including viable links to SFWs and responsive program contacts. A Google search was used to identify SFWs not readily available on these national databases. SFWs were evaluated based on online education and recruitment content.

RESULTS: Evaluators found 45 SFWs of 63 active programs (71%). Available SFWs were often not readily accessible from national program lists, and no program afforded a direct link to their SFW from SF Match. Approximately half of all programs responded via e-mail. Although many programs described surgical experience (91%) and research requirements (87%) during the fellowship, less than half mentioned didactic instruction (46%), journal clubs (41%), and national meetings or courses attended (28%). Evaluators found an average 45% of fellow recruitment content. Comparison of SFWs by program characteristics revealed three significant differences. Programs with greater than one fellowship position had greater online education content than programs with a single fellow ($p=.022$). Spine fellowships affiliated with an orthopedic residency program maintained greater education ($p=.006$) and recruitment ($p=.046$) content on their SFWs.

CONCLUSIONS: Most orthopedic spine surgery programs underuse the Internet for fellow education and recruitment. The inaccessibility of information and paucity of content on SFWs allow for future opportunity to optimize these resources.

Keywords: Spine fellowship; Websites; Accessibility; San Francisco match; Education; Recruitment; Orthopaedic residency

Introduction

Orthopedic residents applying for spine surgery fellowship use Web-based resources like the San Francisco Match (SF Match) to manage their applications [1]. Most US-based orthopedic spine surgery fellowships participate in the Spine Surgery Fellowship Match, which was established in 2008 to coordinate the appointment of fellows. Interested applicants register with SF Match to access

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program lists and obtain program information. Importantly, applicants often access spine fellowship Web sites (SFWs) via embedded links to obtain additional information on prospective programs [1]. Thus, in addition to advice obtained from mentors and colleagues, Internet-based resources can help orthopedic residents decide where to apply.

San Francisco Match is critical for the residents applying to programs who participate in the Match, but a variable number of programs do not, and thus require a separate application process. In addition to overseeing the Match, the North American Spine Society (NASS) maintains a program list for interested applicants [2]. One of the purposes of this study was to assess the accessibility and comprehensiveness of information from this resource. Additionally, it is unknown how orthopedic spine fellowship programs in the US use the Internet to disseminate program information to potential applicants. We therefore analyzed SFWs for information used to recruit and educate trainees.

An overwhelming majority of orthopedic residents trained in the United States pursue additional fellowship training, and spine fellowship is among the most popular [3]. Studies in other medical literature demonstrate the impact that program Web sites have on applicants during the application process [4–7]. Previous evaluations of program Web sites in other surgical specialties have shown an underutilization of these resources for education and recruitment [8–10]. Given this trend, we hypothesized that SFWs would be largely inaccessible and contain a dearth of information for interested applicants. In this study, we determined the accessibility of program information from national databases and evaluated the education and recruitment content of SFWs.

Methods

Study inclusion

The SF Match maintains a comprehensive database of orthopedic spine surgery fellowships participating in the Match [1]. Additionally, the American Medical Association maintains a list of accredited orthopedic spine fellowship programs through the Fellowship and Residency Electronic Interactive Database (FREIDA) [11]. These two databases, which are updated yearly, served as the core lists of orthopedic spine surgery fellowship programs for our study.

Additionally, NASS maintains a comprehensive listing of all orthopedic spine fellowship programs on its Web site, which includes programs not participating in the Match. The NASS database also contains information on spine surgery programs of neurosurgery departments and Canadian-based programs. We excluded these programs from the study because they routinely do not attract orthopedic residents trained in the United States.

As noted in their Web site, Orthopaedicsone.com (Ortho1) is an open peer-reviewed resource intended to be a collaborative knowledge base in the musculoskeletal medicine [12]. Orthopedic fellowships are allowed to create Web pages advertising their programs to prospective residents on Ortho1. The four program lists (SF Match, FREIDA, NASS, and Ortho1) were accessed on May 1, 2014. Programs not participating in the Match were individually contacted by e-mail or phone to determine the active status of their program. Only US-based programs that were active during the 2014 to 2015 academic year were included in this study.

Accessibility

Program lists from SF Match, NASS, FREIDA, and Ortho1 were evaluated for accessibility of program information. Variables that were collected from these databases included total number of advertised programs, viable Web site links, and program contact information. A viable Web site link was defined as linking directly to the SFW. Web site links to orthopedic departments or hospitals were defined as nonviable because these programs did not necessarily maintain an SFW. The number of active fellowships available in NASS and Ortho1 were determined by individual communication with program contacts. Number of responsive e-mail contacts was determined by sending a single e-mail from a Gmail account (Google, Mountain View, CA, USA) soliciting further information from an interested applicant. Responses were collected after 3 weeks when the total number of responders had plateaued.

When links were nonviable, a Google search was performed with the ‘‘program name+spine surgery fellowship’’ and/or ‘‘program name+spine fellowship.’’ Google searches were performed on May 3, 2014. If SFWs were not found after this search, a manual search of the affiliated orthopedic department Web site was undertaken. Spine fellowship Web sites not found after this search were deemed inaccessible and excluded from the content analysis.

Web site evaluation

All Web sites were accessed and assessed by two independent evaluators (JS and JZG) and reviewed by a practicing spine surgeon (ACH). Fellow education and recruitment variables were noted as being present or absent without judgment on information quality. That is, if the SFW provided information on the topic, the variable was marked as being present. Discrepancies were reviewed, and a collective agreement was obtained. This method was used to maintain objectivity during the assessment in comparison with similar studies in other surgical specialties.

Fellow education

Available SFWs were evaluated for comprehensiveness in mentioning key components of the spine surgery curriculum. The final list of 11 variables was refined after consensus among authors and the methodology of the previous studies on this topic. Examples of these criteria include rotation overview, didactic instruction, research interests, and academic conferences (Table 1).