

Factors Used by Program Directors to Select Obstetrics and Gynecology Fellows

Kelly S. Gibson, MD, Tyler M. Muffly, MD, Emily Penick, MD, and Matthew D. Barber, MD, MHS

OBJECTIVE: To describe the factors and attributes that obstetrics and gynecology fellowship directors use in selecting applicants for interview and ranking.

METHODS: Anonymous questionnaires were completed by obstetrics and gynecology fellowship directors using a web-based survey (adapted from a previously published questionnaire) before match day 2011. Fellow selection practices were evaluated and included importance of prematch preparations, screening of applications, interview processes, and recommendations given to applicants. Fellowship directors were asked to grade selection factors based on a 5-point Likert-like scale (ranging from 1 being unimportant to 5 being essential).

RESULTS: A total of 187 fellowship directors representing programs accredited by the American Board of Obstetrics and Gynecology, Inc. were surveyed, and 124 completed the survey (66% response rate). The factors in prematch preparations that 99–100% of program directors found in the essential to important range were a high-quality obstetrics and gynecology residency training program and experience with clinical research during residency or with clinical research after residency. Surgical experience was valued more by gynecologic oncologist respondents than by other subspecialty respondents, although this statistic did not reach statistical significance ($P=.08$).

CONCLUSION: Education pedigree and research experience are important factors considered by fellowship directors when selecting fellowship applicants. For applicants, these data will allow for a critical self-analysis before applying or interviewing.

(*Obstet Gynecol* 2012;119:119–24)

DOI: 10.1097/AOG.0b013e31823d7e32

LEVEL OF EVIDENCE: III

In the 2010 appointment year, the specialties of female pelvic medicine and reconstructive surgery, gynecologic oncology, maternal-fetal medicine, and reproductive endocrinology and infertility filled 95.1% of offered positions, leaving 33% of applicants unmatched.¹ These numbers underscore the fact that the process of obtaining an obstetrics and gynecology fellowship has become increasingly competitive over the past few years. In addition to the rigors of applications and interviews, the cost may be prohibitive for some residents who graduate with substantial debt and earn relatively low salaries while completing training. These realities, coupled with the limited time available to travel and interview, make it crucial that applicants understand the demands of participating in this competitive process.¹

Although previous studies in pediatric general surgery, oral and maxillofacial surgery, and pediatric emergency medicine fellowships have recognized the importance of meeting a fellowship applicant for a face-to-face interview, the specific prerequisites for obtaining this interview are unknown.^{2–5} Miller et al found that in-service training examinations scores were an important factor for selection to surgical subspecialty fellowships, whereas a study of fellowship directors in pediatric surgery showed that coming from a select group of residency training programs was essential to matching successfully.^{6,7} Other studies suggest that experience or letters of recommendation from “thought leaders” are the most important considerations for a successful match.^{8–10} Several questions remain un-

From the Departments of Obstetrics and Gynecology, Cleveland Clinic, Cleveland, Ohio, and the University of Missouri-Kansas City, Kansas City, Missouri.

The survey related to this article is available in the Appendix online at <http://links.lww.com/AOG/A273>.

Supported by a Sarah Morrison institutional grant from the University of Missouri-Kansas City.

Presented at the joint annual meeting of the Association of Professors of Gynecology and Obstetrics and the Council on Resident Education in Obstetrics and Gynecology.

Corresponding author: Tyler Muffly, MD, Center of Urogynecology and Reconstructive Pelvic Surgery, Department of Obstetrics and Gynecology, A-81, Obstetrics, Gynecology, and Women's Health Institute, Cleveland Clinic, 9500 Euclid Avenue, Cleveland, OH 44195; e-mail: mufflyt@ccf.org.

Financial Disclosure

The authors did not report any potential conflicts of interest.

© 2012 by The American College of Obstetricians and Gynecologists. Published by Lippincott Williams & Wilkins.

ISSN: 0029-7844/11



answered for those hoping to subspecialize in obstetrics or gynecology.¹¹ The purpose of our investigation was to determine the factors and attributes of fellowship applicants to American Board of Obstetrics and Gynecology, Inc. (ABOG)–approved fellowship programs and identify those that are most valued by program directors during the ranking process.

MATERIALS AND METHODS

To identify a list of fellowship directors, we consulted the ABOG.¹² Anonymous surveys were sent to 187 fellowship directors from accredited obstetrics and gynecology subspecialties (survey is available in the Appendix online at <http://links.lww.com/AOG/A273>). Because all 11 fellowship directors for the combined maternal-fetal medicine–genetics program were also maternal-fetal medicine fellowship directors at the same institution, we did not survey them separately.¹³ Two-year female pelvic medicine and reconstructive surgery fellowships for urologists were excluded from analysis as well. A brief statement describing the intended use of data informed respondents that their participation constituted their voluntary consent to the study.

A four-part (educational data, prematch preparation, interview process, and role of the match) electronic survey was adapted from a previously developed questionnaire.¹⁴ The category of educational data included items related to quality of medical education and research experience. Prematch preparation focused on previous publications and participation in fellowship visiting electives. The last two categories, interview process and role of the match, evaluated the importance of application components and screening of applicants before the interview. The survey included a location for respondents to make free text comments.

Identical 31-item questionnaires were e-mailed to 187 fellowship directors before the earliest match of 2011 opened (female pelvic medicine and reconstructive surgery, April 4, 2011). In an attempt to increase response rate, a letter was sent by postal service surface mail introducing the survey before the opening, followed by two more personalized e-mails over the next few weeks. A \$5 gift card to an Internet retailer and a textbook lottery were the inducement provided for completion of the survey. A final postal service mailing was sent to all nonresponders, and a self-addressed stamped envelope, survey, and \$1 were enclosed.

Fellowship directors were asked to grade selection factors based on a 5-point Likert-like scale and anchors ranging from “not at all important” to “essen-

tial.” We considered characteristics scored essential, very important, and important to be highly valued characteristics. For ranking questions, we considered ranked scores of 1, 2, or 3 on a 10-point scale to be highly valued characteristics. We calculated the highly valued items for each question within and across the subspecialties. The Kruskal-Wallis test was used to determine whether significant differences existed across subspecialties for each of the criteria and within a specialty for different continuous variables. Categorical data were compared between subspecialties using a χ^2 test, and the Wilcoxon rank-sum test was used for ordinal or nonparametric tests for continuous data. Responses were analyzed using statistical software (JMP 9.0, SAS Institute). Comments left by fellowship directors were reviewed for similar themes with respect to improving the fellowship matching process. An exemption from Cleveland Clinic Institutional Review Board approval was obtained for this study.

RESULTS

We received 124 completed surveys from the 187 fellowship directors in female pelvic medicine and reconstructive surgery, gynecologic oncology, maternal-fetal medicine, and reproductive endocrinology and infertility who were invited to participate for an overall 66% response rate. Respondents were mostly male (71%) and mostly maternal-fetal medicine fellowship directors (41%). The response rate was similar between the four subspecialties (Table 1). The majority of programs were 3 years in length (94%).

A number of attributes was ranked as essential to important across all subspecialties. In terms of the submitted curriculum vitae and application, fellowship directors considered a pedigree of high-quality obstetrics and gynecology residency (100%) followed by clinical research experience (99%) and a high-quality medical school education (91%) to be the most important prematch education factors (Table 2). A high-quality residency has been defined as historically strong programs, excellent clinical volume, and well-respected faculty.

One-hundred percent of fellowship directors also regarded letters of recommendations as an important form of information for making rank order list decisions. A letter of recommendation from a subspecialist in the field was rated as essential by 54% of female pelvic medicine and reconstructive surgery, 70% of gynecologic oncology, 36% of maternal-fetal medicine, and 42% of reproductive endocrinology and infertility fellowship directors. A telephone conversation



Table 1. Characteristics of Obstetrics and Gynecology Fellowship Director Respondents

Characteristic	Overall	Nonresponders*
Male (n=122)	87 (71)	79 (76)
Response rate within the subspecialty		
Female pelvic medicine and reconstructive surgery (n=34)	22 (65)	12 (35)
Gynecologic oncology (n=45)	25 (56)	20 (44)
Maternal-fetal medicine (n=77)	51 (66)	16 (21)
Reproductive endocrinology and infertility (n=41)	26 (63)	15 (37)
2 y or more as fellowship director (n=124)	112 (90)	Not available
Location of fellowship (n=123)		
Midwest	32 (26)	Not available
Northeast	43 (35)	Not available
Southeast	21 (17)	Not available
West	27 (22)	Not available
Fellowship duration (n=122)		
3 y	115 (94)	Not available
4 y	7 (6)	Not available
Research time structure (n=122)		
1 y, continuous	70 (57)	Not available
Individual months	47 (39)	Not available
Individual days	5 (4)	Not available
No protected time offered	0	Not available
Number of interview dates (n=122)		
1–2	64 (52)	Not available
3–4	43 (35)	Not available
5 or more	15 (12)	Not available
Communication with candidates before submission of rank list (n=121)		
Communication with number 1 ranked candidate	6 (5)	Not available
Communication with top few candidates	42 (35)	Not available
Communication to all candidates	16 (13)	Not available
No communication with candidates	57 (47)	Not available

Data are n (%).

* Nonresponder data are available only for those who performed the online survey.

from a colleague was rated as essential by 23% of female pelvic medicine and reconstructive surgery, 39% of gynecologic oncology, 18% of maternal-fetal medicine, and 17% of reproductive endocrinology and infertility

fellowship directors. Neither a letter of recommendation from a subspecialist in the field ($P=.08$) nor a telephone conversation from a colleague ($P=.048$) was weighted differently between subspecialties.

Table 2. Fellowship Director Rating of Prematch and Educational Preparations

Factor*	Essential	Very Important	Important	Relatively Unimportant or Not at All Important
High quality of obstetrics-gynecology residency	46 (37)	59 (48)	19 (15)	0
Clinical research during or after residency	32 (26)	60 (49)	30 (24)	1 (1)
High quality of medical school education	12 (10)	50 (41)	51 (41)	10 (8)
Quality of research publications	17 (14)	52 (42)	44 (36)	10 (8)
Quality of previous surgical experience	10 (8)	43 (35)	55 (45)	14 (12)
Quantity of previous surgical experience	2 (3)	31 (25)	70 (57)	19 (15)
Council on Resident Education in Obstetrics and Gynecology score more than 230	4 (3)	31 (25)	61 (50)	27 (22)
Quality of undergraduate education	7 (6)	27 (21)	61 (49)	29 (24)
Quantity of research publications	8 (7)	24 (20)	58 (48)	32 (25)
Alpha Omega Alpha Honor Medical Society or Phi Beta Kappa or both	2 (2)	29 (24)	50 (41)	41 (33)
Administrative chief resident	2 (2)	20 (16)	52 (43)	48 (39)
Laboratory research experience	4 (3)	25 (20)	43 (35)	51 (42)

Data are n (%).

* We considered characteristics scored as essential, very important, and important to be highly valued characteristics.



Table 3. Results of the Ratings Regarding Desired Applicant Subjective Characteristics Determined at an Interview

Factor	1	2	3	4	5	6	7	8	9	10
Work ethic	78 (69)	31 (27)	4 (4)	0	0	0	0	0	0	0
Works well with staff	67 (60)	31 (28)	11 (10)	2 (2)	1 (1)	0	0	0	0	0
Ability to handle clinical work load	52 (48)	34 (31)	17 (16)	2 (2)	3 (3)	0	0	1 (1)	0	0
Leadership ability	31 (28)	48 (43)	19 (17)	6 (5)	5 (5)	2 (2)	0	0	0	0
Knows when to call for help	48 (43)	29 (26)	22 (20)	9 (8)	2 (2)	2 (2)	0	0	0	0
Personality	41 (37)	38 (35)	17 (15)	8 (7)	5 (5)	1 (1)	0	0	0	0
Self-confidence	19 (17)	32 (29)	40 (36)	11 (10)	7 (6)	3 (3)	0	0	0	0
Plans to enter an academic practice	20 (18)	26 (23)	31 (28)	12 (11)	13 (12)	3 (3)	2 (2)	0	1 (1)	4 (4)
Technical surgical ability	12 (11)	32 (28)	32 (28)	17 (15)	10 (9)	2 (2)	1 (1)	4 (4)	2 (2)	1 (1)
Appropriately assertive	5 (5)	27 (25)	38 (35)	13 (12)	15 (14)	2 (2)	5 (5)	2 (2)	1 (1)	2 (2)
Sense of humor	10 (9)	23 (20)	34 (30)	22 (19)	14 (12)	2 (2)	3 (3)	1 (1)	2 (2)	2 (2)
Applicant's significant other's occupation	0	1 (1)	1 (1)	0	5 (5)	2 (2)	1 (1)	4 (4)	12 (11)	84 (76)
Hobbies	0	0	1 (1)	4 (4)	8 (7)	12 (11)	9 (8)	14 (13)	16 (14)	47 (42)
Applicant's marital status	0	0	0	0	4 (4)	2 (2)	2 (2)	6 (5)	6 (5)	90 (82)
Race or ethnicity	0	0	0	0	1 (1)	1 (1)	1 (1)	1 (1)	2 (2)	102 (94)
Sex	0	0	0	1 (1)	4 (4)	1 (1)	2 (2)	3 (3)	5 (5)	95 (86)

Data are n (%).

* We considered characteristics scored as 1, 2, or 3 to be highly valued characteristics.

Some applicant data were evaluated and weighted differently between the subspecialties. Most notably, reproductive endocrinology and infertility program directors differed from their counterparts in many areas. In choosing to rank a candidate, program directors from reproductive endocrinology and infertility considered laboratory research more important compared with nonreproductive endocrinology and infertility program directors ($P < .01$). Laboratory research was rated least important by female pelvic medicine and reconstructive surgery directors compared with nonfemale pelvic medicine and reconstructive surgery program directors ($P < .01$). Another area of difference was personal experience working directly with a candidate ($P = .045$). Reproductive endocrinology and infertility program directors valued a visiting elective significantly more than nonreproductive endocrinology and infertility fellowship directors did ($P = .01$). Another difference between subspecialties was that oral presentations were more important to female pelvic medicine and reconstructive surgery directors than to maternal-fetal medicine directors ($P = .006$ using Dunn test). Surgical experience was valued more by gynecologic oncologist respondents than by other subspecialty respondents, although this statistic did not reach statistical significance ($P = .08$).

All fellowship directors used these applicant data to screen submissions before sending out interview invitations. At the interview, the most highly ranked characteristics were “work ethic,” “works well with staff,” and “ability to handle clinical workload”

(Table 3). None of the respondents indicated that race (0%) or gender (0%) contributed to the rank list order. Only eight (1%) fellowship directors believed that international medical graduates had an equal chance of matching compared with U.S. medical school graduates.

After going through the entire matching process, respondents were equally split as to its utility. Interestingly, maternal-fetal medicine directors did not feel that qualified applicants went unmatched ($P = .01$) and that all programs should participate in the match each year ($P = .001$). However, compared with the other subspecialty respondents, reproductive endocrinology and infertility directors were more likely to feel that qualified applicants did go unmatched ($P = .01$) and that no reproductive endocrinology and infertility programs should use the National Residency Matching Program ($P < .001$). Forty-six percent of participants agreed that programs should be allowed to drop-out of the match and take an internally selected candidate. Qualitative comments indicated that if a very-high-quality internal candidate wished to stay at the site, then the fellowship director would only interview candidates who were felt to be competitive with that candidate. Only 23% favored centralized interviews in which applicants and fellowship directors would meet at a national subspecialty meeting to gather information and conduct interviews. Eighty-four percent of fellowship directors felt that attending a national meeting was helpful for networking with fellowship applicants ($P = .047$).



DISCUSSION

Few studies have focused on factors considered important in fellowship selection, and fewer still have focused specifically on obstetrics and gynecology subspecialty training.^{2,5,7} The only comprehensive information about selection criteria to which advisors have had access in past years has come from surveys of residency directors. In 1979, Wagoner and Gray¹⁵ conducted the first of these studies, wherein they queried directors about the levels of importance of interview and academic variables in selecting candidates for residency. Subsequently, the National Residency Matching Program began surveying residency program directors annually and publishing the factors that program directors use in both selecting applicants to interview and ranking applicants for the match.¹⁶ Although these studies on the selection process for residents in various disciplines are quite complete, their findings cannot be extrapolated to fellowship program directors.

Our study is the first national survey of all four obstetrics and gynecology-accredited fellowships based on a search of the literature (MEDLINE; January 1966–June 2011; English language; search terms: “Admission Criteria,” “Personnel Selection,” and “Graduate Medical Education”). The results showed some differences in what subspecialists desire in a future fellow, confirming anecdotal evidence about what characteristics have been sought in applicants over the relatively short history of formalized obstetrics and gynecology fellowships. The current investigation parallels an unrelated oral presentation at the 2008 joint meeting of the Association of Professors of Gynecology and Obstetrics and the Council on Resident Education in Obstetrics and Gynecology (“Factors Influencing Obstetrics & Gynecology Fellowship Program Directors in Choosing Prospective Fellows” by Luminita S. Crisan, MD). Although these data were not published and thus not peer-reviewed, our data corroborate their findings with a broader response pool.

Our data showed that there are many common application characteristics important to fellowship program directors in all subspecialties when selecting candidates to interview and rank. It is noteworthy that the pedigree of the applicant’s education and training (quality of residency program and medical school both had scores more than 90% as essential to important) outweighed the importance of an individual’s performance during medical school or residency (Alpha Omega Alpha Honor Medical Society designation, Council on Resident Education in Obstetrics

and Gynecology scores, or administrative chief resident all less than 80% as essential to important).

These data suggest that once an interview has been offered, the fellowship director has confidence that the candidate is academically and technically qualified for the program. After this, the importance shifts from medical ability to interpersonal and social skills. The fact that the “works well with staff” question had the second highest response rate (97%) illustrates that even the most technically competent and medically knowledgeable candidates will have a difficult time matching if it is perceived that they lack the ability to integrate seamlessly into a new program. The social skills desired by program directions seem to be confined to working relationships only, however, because both sense of humor and hobbies received almost no consideration at all.

One strength of our survey is that it likely reached every single one of its intended recipients. We had the e-mail addresses of all subspecialty fellowship directors that were made publicly available by the ABOG. There are weaknesses to this study, including a fair response rate of 66%. Although this response rate may not be ideal, it is superior to other published studies such as the 2010 National Residency Matching Program Residency Program Director Survey, which achieved 116 responses, for a 49.6% response rate. Another limitation is that a form of selection bias may have been introduced into the study. Only the respondents who were willing to comment chose to complete the survey. Also, as is typical of surveys, not all respondents answered all questions.

The data are particularly helpful to those who counsel residents before they enter the matching process and the applicants themselves. As more residents choose to participate in fellowship training, and as the pool of competitive applicants continues to grow, there is increasing interest among residents regarding the factors considered important in fellowship selection. Providing these data points will allow residents to focus their training and research efforts during their residency and prioritize those tasks that will make them the most competitive candidates for fellowship positions that are increasingly difficult to obtain.

REFERENCES

1. National Residency Matching Program. Results and Data Specialties 2010 Appointment Year. Available at: <http://www.nrmp.org/data/resultsanddatasm2010.pdf>. Retrieved August 1, 2011.
2. Hirthler MA, Glick PL, Hassett JM Jr, Rossman J, Mendola P, Allen JE, et al. Comparative analysis of successful and unsuccess-



- cessful candidates for the pediatric surgical matching program. *J Pediatr Surg* 1992;27:142-5.
3. Marciani RD, Smith TA, Heaton LJ. Applicants' opinions about the selection process for oral and maxillofacial surgery programs. *J Oral Maxillofac Surg* 2003;61:608-14.
 4. Crane JT, Ferraro CM. Selection criteria for emergency medicine residency applicants. *Acad Emerg Med* 2000;7:54-60.
 5. Poirier MP, Pruitt CW. Factors used by pediatric emergency medicine program directors to select their fellows. *Pediatr Emerg Care* 2003;19:157-61.
 6. Miller AT, Swain GW, Widmar M, Divino CM. How important are American Board of Surgery in-training examination scores when applying for fellowships? *J Surg Educ* 2010;67:149-51.
 7. Little DC, Yoder SM, Grikscheit TC, Jackson CC, Fuchs JR, McCrudden KW, et al. Cost considerations and applicant characteristics for the Pediatric Surgery Match. *J Pediatr Surg* 2005;40:69-73.
 8. Khan K, Levstik M. Ranking in Canadian gastroenterology residency match: what do residents and program directors want? *Can J Gastroenterol* 2010;24:369-72.
 9. Majewski RF, da Fonseca MA, Devries ES, Hu JC, Murdoch-Kinch CA. Factors influencing pediatric dental program directors' selection of residents and demographics of current directors. *J Dent Educ* 2009;73:338-44.
 10. Yuan JC, Lee DJ, Knoernschild KL, Campbell SD, Sukotjo C. Resident selection criteria for advanced education in prosthodontic programs: program directors' perspective. *J Prosthodont* 2010;19:307-14.
 11. Krotz S. Tips for matching a fellowship. *Sex Reprod Menopause* 2008;6:9-12.
 12. American Board of Obstetrics and Gynecology. ABOG & ABU Approved Fellowship Training Programs in Female Pelvic Medicine & Reconstructive Surgery. Available at: <http://www.abog.org/publications/FPMRS-2-2011.pdf>. Retrieved August 1, 2011.
 13. Society for Maternal-Fetal Medicine. Eleven Programs with Combined Maternal Fetal Medicine and Genetics Fellowship Now Accredited. Available at: <https://www.smfm.org/attachedFiles/MFMGenetics810.pdf>. Retrieved August 1, 2011.
 14. Muffly TM, Penick ER, Tang F, Bonham AJ, Smith RP, Hill RF et al. Factors used by female pelvic medicine and reconstructive surgery fellowship directors to select their fellows. *Int Urogynecol J Pelvic Floor Dysfunct* 2010;21:349-52.
 15. Wagoner NE, Gray GT. Report on a survey of program directors regarding selection factors in graduate medical education. *J Med Educ* 1979;54:445-52.
 16. National Residency Matching Program. National Residency Matching Program Program Director Survey. Available at: <http://www.nrmp.org/data/programresultsbyspecialty.pdf>. Retrieved August 1, 2011.

OBSTETRICS & GYNECOLOGY



What's in This Month's Issue of *Obstetrics & Gynecology*? Sign up for the eTOC and find out.

The journal's electronic table of contents (eTOC) can be delivered to you each month by e-mail. To sign up, follow these simple steps:

1. Go to www.greenjournal.org
2. Click on "eTOC" in the top right corner
3. Enter your e-mail address in the box that pops up
4. Click "Continue"
5. An e-mail will be sent to the address you provided. Click on the link in the body of that e-mail to confirm your eTOC subscription

rev 12/2010

