Fellow Perceptions of Residency Training in Obstetrics and Gynecology

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OBJECTIVE: To evaluate the perceptions of current and former fellows in obstetrics and gynecology (OBG) subspecialties of their readiness for fellowship training.

METHODS: A previously used survey was modified and distributed in 2016 to current and former fellows in gynecologic oncology, maternal-fetal medicine, reproductive endocrinology-infertility, and female pelvic medicine and reconstructive surgery. The survey explored domains of professionalism, independent practice, psychomotor ability, clinical evaluation, and scholarship. A standard Likert scale was employed and domains/responses were tailored to each subspecialty. Standard statistical models were utilized.

RESULTS: A total of 478 fellows responded to the survey. Nearly 75% of fellows from each specialty reported feeling prepared or very prepared for fellowship. More than 65% of fellows from each specialty reported feeling very prepared to perform core surgical procedures. More than 90% of respondents reported having opportunities during residency to independently develop a plan of action for patients on labor and delivery. Fewer respondents reported opportunities to independently manage postoperative complications—40.7% of gynecologic oncology and 44.7% of female pelvic medicine and reconstructive surgery reported having such opportunities, whereas 91.9% of maternal-fetal medicine respondents reported having had such opportunities. While 46.4% of respondents received education on scientific writing during residency, 80% reported writing a manuscript as a resident.

CONCLUSIONS: The majority of current and former fellows in OBG subspecialties report feeling prepared for fellowship in terms of clinical and surgical skills. Their feedback reveals opportunities for improvement of independent practice in gynecologic scenarios, as well as formal education on scientific research, for OBG residencies. (J Surg Ed 76:93–98. © 2018 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: Graduate medical education, Independent practice, Obstetrics and gynecology, Preparedness for fellowship

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Previous publication: A limited portion of the results from this study was recently published as a Research Letter in the *American Journal of Obstetrics and Gynecology*. We feel that our submission does not represent dual publication, as this manuscript includes all of the results pertinent to the main findings of the study, and a discussion of the implications of our findings on graduate medical education for residents in obstetrics and gynecology, neither of which were included in the Research Letter publication.

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COMPETENCIES: Patient Care, Medical Knowledge, Professionalism

INTRODUCTION

There have been an increasing number of residents applying for subspecialty training within the field of obstetrics and gynecology (OBG).[1] Resident aptitude for fellowship training is of paramount importance, not only is readiness for fellowship training a surrogate for independent practice[2,3] but is also essential in order to benefit from subspecialty education. A recent survey of program directors of subspecialty fellowships in OBG[3] showed that directors found worrisome inadequacies in recent incoming fellows, specifically in regards to lack of ownership. The surgical skills of incoming fellows in gynecologic oncology (GO) and female pelvic reconstructive medicine were globally noted to be particularly deficient.[4]

These deficiencies may potentially be addressed by the evolving "milestones" method of resident evaluation,[5] as well as individualizing resident education in OBG through a "tracking model."[6] However, a comprehensive solution for deficiencies identified by teachers should also be composed with input from learners on perceived weaknesses. The goal of this study was to assess the impression of new and recently graduated fellows of their preparedness following residency for subspecialty training in OBG.

METHODS

Institutional Review Board approval was obtained for this study at each of the authors' governing Institutional Review Board bodies. A multi-item survey similar to one utilized by the American College of Surgeons Fellowship Council[7] was amended to assess fellow's perception of residency training. The survey was based on the previously published[3] survey utilized by our group, addressing domains in autonomy, independent decision-making, technical ability, academic scholarship, and clinical evaluation. The survey was individualized for each subspecialty to reflect the expectations and abilities of current and former fellows in 4 subspecialties in OBG: female pelvic medicine and reconstructive surgery (FPMRS), GO, maternal-fetal medicine (MFM), and reproductive endocrinology-infertility (REI). A copy of the survey for each subspecialty is provided in the Appendix.

Candidates for assessment included current and former fellows in 4 OBG subspecialties. Participants for the GO, REI, and MFM subspecialties were identified through request and approval by national subspecialty societies: Society of Gynecologic Oncologists, American Society of Reproductive Medicine, and the Society for Maternal Fetal Medicine. Participants for the FPMRS subspecialty were identified from online resources from fellowship directors. The email addresses were provided by the societies, and in 2016 participants were contacted via email 3 times over the course of 8 weeks to ask them to complete the survey. A letter explaining the intent and goals of the survey accompanied the email. Data were entered electronically into the Research Electronic Data Capture at the University of Colorado through a secure network server. Research Electronic Data Capture is a secure, web-based application designed to support data capture for research studies. Quantitative data were grouped into 2 categories based on the Likert scale with the "strongly agree" and "agree" responses grouped together as "agree" and the "neutral," "disagree," and "strongly disagree" grouped together as "disagree." For each query, the "agree group" was compared with the "disagree" group to assess for statistical differences between subspecialties. For the procedures unique to each subspecialty, quantitative data were abstracted only.

Statistical testing included analysis of variance (continuous variables) and χ^2 tests (categorical variables). For all analyses, a $p < 0.05$ was considered statistically significant and IBM SPSS 22.0 software was used.

RESULTS

Of the 1213 physicians invited to participate, 478 (40%) responded. The demographics of the respondents are outlined in the Table. The majority of respondents were current fellows (63%), whereas the remainder (37%) had recently completed training. More than 90% of MFM respondents (91.9%) reported feeling "prepared" or "very prepared" for fellowship after residency. Although the majority of respondents from the other subspecialties also expressed feeling prepared, it was less than with MFM—80% of GO, 78.3% of REI, and 74.5% of FPMRS reported feeling "prepared" or "very prepared" for fellowship.

Surgical Skills

More than 60% of respondents in each subspecialty reported being able to perform core procedures within the field within the field independently: GO 63.0%, MFM 73.7%, REI 65.2%, and FPMRS 62.8% (Fig.).

FPMRS

FPMRS fellows expressed confidence in their ability to perform core gynecologic procedures when entering fellowship. Of respondents, 70% answered that they could independently perform an abdominal hysterectomy when entering fellowship. A majority of FPMRS fellows

TABLE. Characteristics of Obstetrics and Gynecology Subspecialty Fellow Respondents

	GO n = 150	MFM n = 124	REI n = 157	FPMRS n = 47
Stage of training				
Current fellow	82 (54%)	101 (81.5%)	73 (46.5%)	43 (91.5%)
Completed fellowship	68 (45.3%)	23 (18.5%)	84 (53.5%)	4 (8.5%)
Independent practice between residency and fellowship training?				
Yes	21 (14%)	19 (15.3%)	29 (18.5%)	7 (14.9%)
No	129 (86%)	105 (84.7%)	128 (81.5%)	40 (85.1%)
Was your residency associated with a fellowship in your subspecialty?				
Yes	85 (56.7%)	80 (64.5%)	92 (58.6%)	19 (40.4%)
No	65 (43.3%)	44 (35.5%)	65 (41.4%)	28 (59.6%)

also stated that upon entering fellowship they could independently perform straightforward laparoscopy (77%), recognize tissue planes (68%), perform lysis of adhesions (64%), pack the bowel (79%), and proficiently use surgical energy sources (85%).

GO

The majority of GO respondents generally expressed confidence in their surgical abilities, with 69% answering that they could independently perform an abdominal hysterectomy when entering fellowship. Respondents also reported that they could independently proficiently use surgical energy sources (81%), perform straightforward laparoscopy (79%), perform bowel packing (63%), and recognize tissue planes (53%). Only 45% of respondents were confident in their ability to independently perform lysis of adhesions.

MFM

When asked to assess their preparedness for fellowship after completing residency, 91.9% of MFM respondents felt well prepared, the highest rate among all specialties ($p = 0.008$). MFM physicians were the most confident cohort of respondents when assessing their ability to independently perform core procedures when entering fellowship ($p < 0.001$). Over 99% of respondents could independently perform a complicated cesarean delivery and 97% could perform a vacuum-assisted vaginal delivery. Respondents were also confident in their ability to perform ultrasounds for amniotic fluid volume and fetal growth (83%), repair third or fourth degree perineal lacerations (78%), manage a labor and delivery floor (93%), and manage postpartum complications (98%). Performing forceps-assisted vaginal delivery (39%) and basic fetal anatomic survey (9%) were the only areas where MFM respondents lacked confidence.

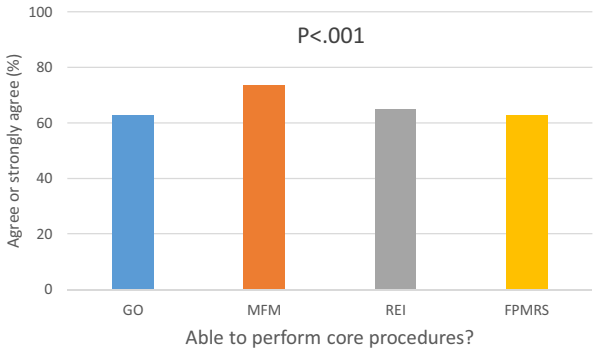

FIGURE. Assessment of ability to perform core procedures independently on entering fellowship in each of the 4 subspecialties in obstetrics and gynecology.

REI

REI respondents were confident of their ability to perform core gynecology procedures independently, but felt less comfortable with more specialized procedures. The majority (70%) of respondents in REI reported feeling capable of performing a laparoscopic hysterectomy at the start of fellowship. There was also a high-degree of confidence in independently performing straightforward laparoscopy (96%), hysteroscopic myomectomy with a resectoscope (73%), and abdominal myomectomy (91%). Respondents were less confident in their ability to independently perform laparoscopic myomectomy (28%), hysteroscopic lysis of adhesions for Asherman's syndrome (40%), and intrauterine insemination (21.7%).

Opportunities and Capability for Leadership and Independent Practice

More than 90% of respondents from GO (98.7%), MFM (99.2%), and FPMRS (91.5%) reported that they were given opportunities during residency to independently develop a plan of action for patients on labor and delivery. In addition, 98.0% of GO and 95.7% FPMRS respondents reported having opportunities to independently develop a plan for postoperative patients as residents. However, fewer respondents reported having opportunities in residency to independently develop a plan of action for intraoperative complications—70.7% of GO and 83.0% of FPMRS reported having such

opportunities, whereas 93.5% of MFM respondents reported having had such opportunities.

The majority of MFM respondents (97.6%) reported that when entering fellowship, they felt able to independently manage postpartum complications. In contrast, only 40.7% of GO and 44.7% of FPMRS felt that they were able to independently manage postoperative complications when entering fellowship.

Research Experience

In residency, while only 46.4% of respondents received education on scientific writing, 80% reported writing a manuscript as a resident and nearly all respondents participated in a resident research project. Nearly 90% of respondents in GO, MFM, and FPMRS reported having education on evidence-based medicine during residency. Within the subspecialties, 86.7% of GO, 94.4% of MFM, and 66.0% of FPMRS respondents applied evidence-based medicine guidelines to literature within the subspecialty. Within REI respondents, 80.9% reported receiving education on how to generate a hypothesis, and 84.7% received education on how to do a literature search.

DISCUSSION

The findings from our survey of fellows in 4 of the OBG subspecialties provide an interesting contrast to a recent survey of subspecialty fellowship directors.[3] Preparedness for fellowship was overall noted to be rated higher by respondents compared with program directors. In addition, the proportion of respondents reporting preparedness by subspecialty seemed to parallel that of the subspecialty fellowship directors.

In regards to surgical skills, the self-reported ability of current and former fellows was higher than the fellowship directors' perceptions of the incoming fellows' surgical skills.[3] A possible explanation for this discrepancy may be the varying expectations for technical skill and surgical performance among the OBG subspecialties. This may also reflect the varying level of patient acuity seen in each of the subspecialties. In addition, it was interesting to note that in general, respondents noted decreased comfort with fundamental tasks (such as identifying tissue planes) compared with procedures (hysterectomy). This may reflect that in gynecology, along with other surgical specialties, there is decreased surgical volume but increased numbers of surgical modalities.[8] Simulation curriculum may be a method of addressing the lack of confidence in basic surgical skills.

The majority of survey respondents noted that they had opportunities in residency to independently develop plans of care for various obstetrical and gynecologic scenarios. However, the rates of such opportunities with obstetric scenarios were higher compared to that of gynecologic situations. This may reflect the high-volume clinical experiences in obstetrics, compared to the decreasing numbers of hysterectomies performed nationwide,[9] such that there are fewer opportunities for residents to acquire and maintain such skills. It may also reflect the decreasing surgical and perioperative experience of junior OBG-attending physicians, resulting in overall fewer opportunities for independent practice by residents.

A surprising finding of the surveys pertained to exposure to research in residency. The majority of respondents for all subspecialties noted having participated in a research project and writing a scientific manuscript during residency. However, these findings are in contrast to the perceptions of fellowship directors of the lack of skills pertaining to academic medicine and research. In addition, only approximately 50% of respondents noted receiving training in scientific writing during residency. We were not able to analyze whether the presence of a fellowship program was associated with more respondents noting education on scientific writing, but this may be an explanation for the findings. In residency programs where trainees are seeking out subspecialty training, options for formalized training in clinical research and statistics may be beneficial. For fellowship programs, conducting a needs assessment[10] of incoming fellows may identify those who could benefit from both basic and advanced education in clinical research, statistics, and writing. The high rates of research involvement likely reflect the nature of the surveyed audience, given the requirements of the ACGME.[11] Although we did not survey residents who did not pursue subspecialty training, it may be that participation in research is not providing sufficient skills to residents who intend to pursue subspecialty training.

The strengths of our current study include use of a previously used survey instrument,[3,7] the inclusion of 4 American Board of Obstetrics and Gynecology (ABOG)-accredited subspecialties, and the applicability of survey responses to the residency training process. Weaknesses of the study include the variable response rate seen within the subspecialties. Our overall response rate was 40%, which was lower than that seen in the previous survey of OBG fellowship program directors.[3] This could have affected the study findings as a result of nonresponse bias. However, this response rate is comparable to the wide variation of response rates seen in prior surveys of fellows in the OBG subspecialties.[12-22] Recall bias by the respondents may have affected the study findings. In addition, since 37% of the respondents were graduated fellows, their recollection of residency may carry more bias. We did not notice a difference in responses between current and graduated fellows. The application of the Likert scale to our survey responses may have led to measurement bias in the setting of assessing the beliefs and convictions of the

respondents. Given that we were surveying current and former fellows on their perception and attitudes pertaining to their skills and exposure, we felt that the Likert scale was most appropriate.[23] The survey required adaptation to 4 diverse subspecialties that include a wide variety of skills; this may have affected the surveys' ability to provide an accurate description of the respondents and contributed to measurement bias. We did not have any demographic information on those physicians who did not respond to our survey, which prevented us from comparing the nonresponders to the survey respondents. Lastly, we did not survey residents who had not completed a subspecialty fellowship, which would have provided an interesting comparison as to operative experience and opportunities for independent practice during residency.

Our current study shows that current fellows in OBG subspecialties overall feel prepared in terms of their surgical skills and clinical management. However, there is a discrepancy between fellows and program directors as to the degree of preparedness. Future research should include a survey of outgoing chief residents to minimize recall bias. In combination with the prior survey by Guntupalli et al., the results from this survey suggest that improved in residency training are needed both by those residents seeking subspecialty training and those who strive to become specialist OBGs.[24]

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SUPPLEMENTARY INFORMATION

Supplementary data associated with this article can be found in the online version at https://doi.org/10.1016/j.jsurg.2018.06.013.