

# Effect of COVID-19 on Female Pelvic Medicine and Reconstructive Surgery Fellowship Education and Training

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**Importance:** The COVID-19 pandemic has caused a noticeable disruption in national medical and surgical care, including medical training.

**Objectives:** We designed a survey to examine the educational effect of the pandemic on female pelvic medicine and reconstructive surgery (FPMRS) training and secondarily to identify areas for innovation and opportunity in FPMRS fellowship training.

**Study Design:** We used an online survey, approved by the American Urogynecologic Society Scientific Committee and distributed it to FPMRS fellows with responses obtained and stored in REDCap. Demographic data, educational and surgical experiences, the implications of the changes, and data regarding working from home were collected.

**Results:** The survey was completed by 88 fellows, with 92% of respondents being obstetrics and gynecology-based. All 10 geographic regions had at least one response. Six regions had a 50% or greater redeployment rate. Only 16% of respondents were not redeployed or on-call to be redeployed. Eighty-five percent of the ob/gyn fellow redeployments were within their home department. There was no relationship between training region and redeployment. Only 31.7% of the respondents continued to perform any FPMRS surgery. Approximately 35% of the fellows desired the opportunity for surgical simulation training because surgical cases were reduced.

No relationship was seen between either redeployment status and needs ( $P = 0.087-0.893$ ) or difficulties ( $P = 0.092-0.864$ ) nor training location and needs ( $P = 0.376-0.935$ ) or difficulties ( $P = 0.110-0.921$ ).

**Conclusions:** There was a high rate of redeployment among fellows; however, this was not associated with their reported needs and difficulties. The FPMRS-related surgical experience was affected during this time, and the fellows desired increased surgical simulation training.

**Key Words:** COVID-19, COVID-19 education, COVID FPMRS surgery, FPMRS fellowship, FPMRS surgery, FPMRS training, pandemic education, surgical education

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Since late 2019, the world has been affected by an ongoing pandemic of coronavirus disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus. COVID-19 has changed the most basic ways of life in the United States, including how we go to work, how we connect with friends and family, how we receive education, and how we practice medicine. For those trainees in graduate medical education programs, these changes are causing noticeable alterations in the traditional

medical education models. In March 2020, the Accreditation Council for Graduate Medical Education (ACGME) acknowledged that many institutions had reduced elective visits and procedures, or redeployed GME personnel to support critical services of the hospital, and that residents and fellows may not be able to achieve the specialty-specific case number requirements.<sup>1</sup> Aside from changes in case numbers, there have also been changes in how didactic education sessions were delivered, transitioning from in-person meetings or lectures to online platforms.<sup>2</sup> We sought to gain more insight into how these various changes were used and how training experiences were affected among trainees in fellowship programs for female pelvic medicine and reconstructive surgery (FPMRS) during the COVID-19 pandemic.

## MATERIALS AND METHODS

We created an online, self-administered survey in REDCap (Research Electronic Data Capture, version 10.6.3, NIH/National Center for Research Resources Colorado CTSI Grant Number UL1 TR000445), a secure, web-based application that is available for a variety of types of research. The survey was anonymous, and all responses were stored in REDCap. Our survey study was approved by Vanderbilt University Medical Center Institutional Review Board (IRB number 200917) as well as American Urogynecologic Society (AUGS) Scientific Committee. The survey was then distributed via email by AUGS to fellow members. A separate invitation to participate was sent through the AUGS Fellows' Clinical Community, which is a voluntary group fellows can request to join. Targeted social media were also used by posting information about the survey on the AUGS Facebook page and Twitter account. Fellows were sent 4 reminder emails, and the survey was closed to responses 12 weeks after initial distribution. The initial survey was sent out in June before the end of the academic year 2020, but follow-up emails were sent out after graduation. Using the Fellows Clinical Community, which requires membership by request but also for the fellow to remove themselves from the group, we were able to maintain contact with the recently graduated fellows who had not removed themselves from the group immediately upon graduation. To limit year overlap, fellows had to confirm that they were a fellow in 2020 and state what year of fellowship they completed in 2020.

The survey included 24 questions to collect demographic data as well as the education plans, redeployments, surgical experiences, work status, and the implications of the changes, including 9 specific needs and 7 specific difficulties, and there were 6 optional questions regarding working from home (Supplemental Digital Content 1, <http://links.lww.com/FPMRS/A312>). These questions covered any period in academic year 2019–2020 until the fellow completed the survey. Training regions were divided into 10 geographical divisions as defined by the U.S. Census Bureau (Table 1).<sup>4</sup> The fisher exact test was used to compare categorical variables. STATA version 16.1 was used for statistical analysis.

## RESULTS

Between June and August 2020, 88 fellows completed the survey, giving a response rate of 52% of the AUGS Fellows

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**TABLE 1.** Geographic Regions

	No. Accredited Fellowship Programs Per Region <sup>3</sup>
NE CT, ME, MA, NH, RI, VT	7
MA NJ, NY, PA	10
ENC IN, IL, MI, OH, WI	17
WNC IA, KS, MN, MO, NE, ND, SD	3
SA DE, District of Columbia, FL, GA, MD, NC, SC, VA, WV	8
ESC AL, KY, MS, TN	3
WSC AR, LA, OK, TX	9
MTN AZ, CO, ID, NM, MT, UT, NV, WY	2
PAC AK, CA, HI, OR, WA	10
OUS	

ENC, East North Central; ESC, East South Central; MA, Middle Atlantic; MTN, Mountain; NE, New England; OUS, outside the United States; PAC, Pacific; SA, South Atlantic; WNC, West North Central; WSC, West South Central.

Clinical Community (at the time of the first release of the survey). Ninety-two percent of the respondents were obstetrics and gynecology-based fellows, while 8% were urology based. There was an even distribution among the year groups. The largest number of responses was seen from the East North Central (ENC) Region (18), followed by New England (NE, 15), the South Atlantic (SA, 12), and Middle Atlantic (MA, 11). All 10 regions had at least 1 response, including outside the United States (Table 2). At the time of the survey, only 1 respondent had not had their fellowship training interrupted by the pandemic.

**Work Experience**

Just more than half (55.6%) of the fellows were working on-site in medical facilities. For these fellows, the hours were reduced, with 42% working only 1–10 hours per week and 20% working 10–20 hours per week. If not working on-site in a medical facility of any kind, 95% of the fellows were expected to be working from home.

**Education**

Eighty percent of the respondents said that their institution offered didactics specific to FPMRS during the COVID pandemic. The majority were offered educational didactics once a week (49%) or twice a week (28%), but 12% of the respondents were offered didactics 5 days per week by their institution.

**Redeployment**

Thirty-eight respondents reported being redeployed during the period of or before the survey (43%; Table 3). Five regions (ENC, SA, East South Central [ESC], West South Central [WSC], outside the US [OUS]) had at least a 50% reported redeployment rate. The highest rate of redeployment (75%) was seen in the SA region. Thirty-four additional respondents were “on-call” to be redeployed but did not end up being used outside of FPMRS. Only 16% of the respondents were not redeployed or on-call to be redeployed. Most of the redeployments among the obstetrics and gynecology-based fellows (85%) were within the department of obstetrics and gynecology, encompassing coverage for general or other gynecology services, services for obstetrics, or both. Only 2 urology-based fellows (of 8 respondents) were used for redeployments and served in the emergency department and triage areas. The relationship between

training region and redeployment approached statistical significance ( $P = 0.059$ ).

**Surgical Experience**

Only 31.7% of the respondents were performing FPMRS surgical procedures at the time of the survey. Of those fellows, 62% were performing between 0 and 5 cases. Almost half of the respondents (46%) were performing surgical procedures other than FPMRS, such as cesarean deliveries, general gynecology, or general urology cases. Of these respondents performing outside cases, the majority (84%) were performing between 0 and 5 cases per week. In comparison, the following average weekly case numbers were reported when business was as usual: 5–10 (66%), 11–15 (23%), 16–20 (7%), and greater than 20 (3.7%). Because surgery was not being performed, we queried whether simulation training was available as a replacement. Only 14.6% of the respondents (12) had any simulated surgical training during this time, and most of those respondents (75%) only had 1–30 minutes per week of simulation training.

**Working From Home**

Fifty fellows completed this optional section. Approximately 40% of those responding felt that they could focus on FPMRS-related activities between 26% and 50% of their day, while 20% responded that they could only stay focused on FPMRS activities from 1–25% of the day, and 24% felt that they could focus 51–75% of their time. Thirty-eight fellows performed some telehealth-related duties at home: 35% performed 0–5 hours per week and 26.5% performed 6–10 hours of these duties. Almost all the fellows responding worked on research while working from home. The majority spent on average 11–15 hours per week working on their research (37%) and another 20% spent 16–20 hours per week on research activities. All the fellows who responded in this section were also doing self-study from home. Most fellows

**TABLE 2.** Demographics

	% of Responses	No. Responses
Ob/gyn	92%	81
Urology	8%	7
NE	17%	15
MA	13%	11
ENC	21%	18
WNC	1%	1
SA	14%	12
ESC	10%	9
WSC	7%	6
MTN	6%	5
PAC	10%	9
OUS	2%	2
Year of fellowship training		
1	31%	27
2	35%	31
3	34%	30

ENC, East North Central; ESC, East South Central; MA, Middle Atlantic; MTN, Mountain; NE, New England; OUS, outside the United States; Ob/gyn, Obstetrics and gynecology; PAC, Pacific; SA, South Atlantic; WNC, West North Central; WSC, West South Central.

**TABLE 3.** Redeployments

	Responses to Survey	Total Redeployed	% of Responders Redeployed	Possible Redeployment, but Not Used
Region				
NE	15	4	26.7	7
MA	11	5	45.5	6
ENC	18	9	50.0	6
WNC	1	0	0.0	1
SA	12	9	75.0	2
ESC	9	5	55.6	2
WSC	6	4	66.7	2
MTN	5	0	0.0	2
Pac	9	1	11.1	5
OUS	2	1	50.0	1
Calculated	88	38		34
Total reporting on survey "Were you redeployed?"	35		34	

ENC, East North Central; ESC, East South Central; MA, Middle Atlantic; MTN, Mountain; NE, New England; OUS, outside the United States; PAC, Pacific; SA, South Atlantic; WNC, West North Central; WSC, West South Central.

(39%) spent up to 5 hours per week on studying or 6–10 hours per week (31%) on study.

### Implications

Fellows were asked what types of educational opportunities they would have liked to have seen more of during this time. They could choose more than 1 answer for this question. Thirty-seven percent said that their educational needs were met, and no further opportunities were desired. The greatest desire was for hands-on surgical training outside the operating room (such as simulation

center use) with 34.6% of the fellows desiring more of this opportunity. The second most desired opportunity was for lectures or education on performing research or research-related topics from national organizations with 32.1% of the fellows desiring this. Other reported desires are listed in Table 4. The fellows also mentioned in optional comments that some protected time away from redeployment requirements would have been helpful.

Aside from difficulties due to a disrupted educational plan, the pandemic created personal difficulties for many trainees, and the fellows were no exception. Only 18.5% of the respondents reported no personal difficulties during this time. Many fellows

**TABLE 4.** Reported Needs and Difficulties With Tests of Association Between Redeployment and Training Location

	% of Respondents	P for Test of Association With Redeployment	P for Test of Association With Location
Fellow reported needs			
Lectures from home institution	28.4	0.397	0.762
Lectures for organizations	12.3	0.087	0.69
Research meetings with home institution	14.8	0.593	0.376
Research education from national organizations	32.1	0.668	0.447
Readings or assignments from home institution	17.3	0.43	0.43
Ability to give lectures to medical students or residents	7.4	0.628	0.593
Opportunities for hands-on surgical training outside OR	34.6	0.711	0.468
Scheduled wellness times	12.3	0.238	0.935
Training on how to perform telehealth visits	25.9	0.893	0.568
Nothing	37	0.349	0.592
Fellow reported difficulties			
Self-motivation/focus	66.7	0.867	0.634
Direction from PD	7.4	0.092	0.487
No one checked in with me in a personal capacity	8.6	0.14	0.584
I was lonely or struggling mentally/emotionally	27.2	0.513	0.11
Serious concerns outside fellowship (child care, illness, job stability)	33.3	0.13	0.815
Not enough opportunity to check in with program faculty in a professional capacity	11.1	0.565	0.302
Nothing—I managed just fine and my needs were met	18.5	0.802	0.921

All testing used Fisher exact test.

OR, Operating Room; PD, Program Director.

(67%) found it difficult to get focused or self-motivated while working from home because of various reasons, which were not investigated. Serious issues outside of fellowship, such as personal illness and child care concerns, competed with 33.3% of the fellows' time or attention. A total of 27.2% of the fellows reported feeling lonely and/or struggling either mentally or emotionally. Other concerns are listed in Table 4. The fellows also commented on difficulties with trying to balance FPMRS responsibilities with institutional responsibilities like redeployments, research projects being put on hold due to COVID, and fears/anxiety about job finding (including less offers, lower salaries) or perceived skill level due to reduced caseloads.

Because a large amount of time working from home was spent working on research, we wondered whether programs would try to use this as dedicated research time, so future blocks could be changed to clinical time when returning to work. At the time of the survey, 59% of the respondents knew that their training programs were going to credit work from home time as a completed block of research time, while 25% of the respondents did not know. No research credit was going to be given to 16% of the respondents.

We did not find any relationship between either redeployment status and needs ( $P = 0.087-0.893$ ) or difficulties experienced ( $P = 0.092-0.867$ ), nor training location and needs ( $P = 0.367-0.935$ ) or difficulties ( $P = 0.110-0.921$ ; Table 4). When needs and difficulties were examined by year of training, there was an association between year in training (year 2) and need for more wellness time ( $P = 0.022$ ) and desire for telehealth training for year 3 ( $P = 0.050$ ).

## DISCUSSION

We found that most FPMRS fellowship programs were disrupted because of the COVID-19 pandemic, and a large percentage of fellows in those programs were redeployed. It is worth noting, however, that this survey is limited by completion before several large geographic regions, such as the Pacific Coast (including California) and the WSC (which includes Texas) had seen the local surges. We found that most redeployments were within the department of origin. We confirmed that there was an impact on fellowship education, including the reduction in surgical caseload, and learned that the greatest reported desire was for more surgical simulation training. Last, but not least, we have shown the emotional toll working in a pandemic can have on FPMRS trainees. The reduction in surgical caseload is a common theme among surgical specialties, including general surgery,<sup>5</sup> oral and maxillofacial surgery,<sup>6</sup> urology,<sup>7,8</sup> and neurosurgery,<sup>9</sup> among others. This is not surprising, given that many nationwide institutions halted elective procedures for various reasons. The idea that trainee well-being was decreased during the pandemic has been recognized in many specialties and by the ACGME as well and needs to remain a priority of those in leadership positions, such as program directors.<sup>10-14</sup>

Given that the highest self-reported need was for more surgical training opportunities, we wanted to consider how can we overcome this disruption in surgical caseload for FPMRS fellows to graduate with more confidence in their surgical skills? Performing surgical simulation may be one of the most obvious avenues to replace live surgery.<sup>15</sup> The fellows did note that a more robust simulation training plan might have been a helpful addition to their learning during the pandemic. Ophthalmology trainees have also documented a desire for increased simulation during the pandemic.<sup>16</sup> A recent article by Hoopes et al<sup>17</sup> even discusses how surgical skill training resources that can be used because the need for hands-on training outside the operating room has become so apparent in light of the changes brought on by COVID-19. If hands-on simulation is not available, video libraries are another

good alternative and can be very helpful.<sup>18-20</sup> The addition of commentary on the video, provided by experts, has been noted to be a beneficial addition.<sup>19</sup> During this time, some surgical training groups (eg, the International Academy of Pelvic Surgery) made their resources free or at reduced cost to trainees, which provided several options for access to surgical training videos. Individual institutions' willingness to pay for these types of resources, should their trainees be interested, may be helpful in promoting surgical education when performing live surgery is not possible.

Didactic education seems to have experienced many positive changes. Many national organizations stepped up to provide weekly educational sessions, which have not previously been available to fellows or other trainees, and many institutions engaged in sharing educational platforms or lectures with trainees across the nation such as the University of California San Francisco's "Urology Collaborative Online Video Didactics (cleverly abbreviated COVID)."<sup>21</sup> Having these lectures recorded is extremely helpful because this allows the individual to watch them at their own time and pace, giving some autonomy to the trainee. It also allows trainees to have access to as much or as little information as they want or need. For those who want to watch the lectures live to ask questions, however, it would be very helpful to space out these sessions, requiring coordination between the larger organizations. Individual institutions have also devised ways to maintain their local education through online platforms. Moving from in-person educational experiences to remote learning can decrease the stress associated with commuting to 1 location for education and then back to work elsewhere. Staff who previously might not have participated in the trainee education because of location can now easily participate online.<sup>2</sup> We also recognize that educational opportunities might decrease in some programs if faculty members were not available because of redeployment or other needs.

In addressing well-being during the pandemic, the ACGME has published a helpful guidebook with considerations for promoting and maintaining the well-being of trainees.<sup>10</sup>

The full implications of these changes likely will not be able to be fully evaluated until case numbers between 2020 and beyond are able to be compared with years prior. In future research, the COVID era case number information can then be compared with respective scores on board examinations and self-reported comfort level, and patient outcomes data of these graduating fellows can also be correlated.

Our study is limited by a very small sample size, but there is only a very small pool of subspecialty fellows from which to survey. Our response rate could be considered average to good, which is a strength, indicating that FPMRS fellows likely had high levels of motivation to complete the survey. Given the small size, we mainly chose to include descriptive statistics because of the limited power to detect differences. We had been hopeful that the pandemic would not span multiple years of training; therefore, this survey was not designed to evaluate more than one year.

The survey study allowed us to obtain a snapshot of the FPMRS fellows' experience during the COVID-19 pandemic. Our data demonstrate that there was a high rate of redeployment among the fellows; however, this was not associated with their reported needs and difficulties. The FPMRS-related surgical experience was affected during this time, and the fellows desired more simulation training time. We hope that our data will be helpful in examining the longer-term effects of the pandemic on the FPMRS training experience.

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