

The Impact of COVID-19 on Job Prospects and Educational Training for Pediatric Gastroenterology Fellows

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ABSTRACT

Objectives: The COVID-19 pandemic has significantly affected graduate medical education with redistribution of trainees, altered clinical care, and decreased research. For graduating trainees, there remains concern that financial stability of health systems will affect the availability of new positions and hiring practices. This survey aims to evaluate the pandemic's impact from pediatric gastroenterology fellows' perspectives.

Methods: An anonymous survey was distributed by e-mail from June 11 to July 1, 2020 to all North American pediatric gastroenterology and advanced training fellows. The survey was tailored for the fellows' year of training including questions on education, clinical experience, research, and job outlook.

Results: Of the 434 pediatric gastroenterology fellows, 145 completed the survey. Of all respondents, negative impact was reported in 52% on clinical training, 46% research projects, and 41% procedural confidence. A majority (93%) of third-year respondents had a job contract signed at the time of the survey; however, 18% of those contracts were subsequently altered with 5 respondents having job contracts rescinded due to hiring freezes. Fifty-four percent of first- and second-year fellow respondents reported concern regarding finding a job with the majority being second-year fellows (78%).

Conclusions: The COVID-19 pandemic continues to affect the medical system and healthcare professionals. This survey identified significant impact on job acquisition for graduating pediatric gastroenterology fellows and other critical components of training, which are likely applicable to other pediatric trainees. The survey results raise questions about potential strategies to improve medical education and job search success for graduating trainees.

Key Words: COVID-19, fellowship, graduate medical education, networking

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Dr Irastorza conceptualized and designed the study, drafted the survey, reviewed data analyses, and drafted the initial manuscript.

What Is Known

- Recent surveys have shown that COVID-19 affected graduate medical education across many fields regarding clinical experience, research time, procedural skills, and didactic learning.
- Many fellowship programs transitioned early to virtual didactic learning and telehealth.

What Is New

- This survey study provides data on fellows' perspective of the COVID-19 pandemic on their training as well as its impact on job attainment.
- It provides the groundwork for tangible improvements in educational training and job procurement in the setting of a global crisis.

The COVID-19 pandemic has had a global impact on humankind and the society in which we live and, the healthcare community has had to adapt in many ways. Graduate medical education (GME) was severely affected when training programs were required to redistribute trainees, decrease overall clinical care delivery (inpatient, outpatient, and procedural), and halt in-person didactic sessions (1–3). With the cancellation of elective procedures, trainees in procedural specialties were prevented from participating in remaining cases to limit infection risk (1,4,5). Many

Dr Hopson conceptualized and designed the study, drafted the survey, performed data collection and analyses, and drafted the initial manuscript.

Drs Ta and Kemme assisted with the study conceptualization and design, assisted with the survey design/distribution, assisted with data analysis, and drafted the initial manuscript.

Drs Mallon and Lee assisted with survey design/revision, assisted with data analysis, and provided critical manuscript revision.

All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

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clinical research resources were redirected and nonessential research was halted at many institutions (6). In-person networking opportunities were limited as medical conferences were cancelled, postponed, or made virtual. With many institutions and private practice groups reeling economically from decreased revenue, this led to reduced staffing, hiring freezes, and/or staff and physician furloughs (7). For graduating trainees, these financial realities may make job acquisition more difficult and current trainees will continue to experience negative effects of the COVID-19 pandemic on their education and training.

In North America, pediatric gastroenterology fellows training includes three years of clinical experiences, (inpatient and outpatient), research, and endoscopic procedures. Although each fellowship program varies by number of fellows and educational structure, two common structures include clinical experience during the first year with the subsequent two years focused on research and procedures or the clinical/research/procedural experiences are split more evenly over all 3 years. A recent survey of pediatric gastroenterology (GI) program directors by the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition (NASPGHAN) Training Committee showed that programs pivoted towards telehealth and virtual didactics to attempt to ameliorate the negative implications of the pandemic on fellowship training (1); however, this survey did not assess the fellows' perspectives on changes the pandemic was having on their individual training and potential career implications. The NASPGHAN Fellows Committee thus sought to understand the impact of COVID-19 from the pediatric gastroenterology fellows' perspectives. The objectives of our study were to specifically assess the impact of COVID-19 on clinical training, including didactic education, clinical experiences, and research; and job search and attainment for trainees.

METHODS

An anonymous electronic survey was developed by the NASPGHAN Fellows Committee. Early iterations of the survey were distributed to a pilot group of fellows as well as NASPGHAN leadership to elicit feedback regarding clarity and relevance of the questions (Supplemental Digital Content, <http://links.lww.com/MPG/C156>).

MPG/C155). All North American pediatric gastroenterology fellows (first to third year) and fellows completing a fourth year of advanced training in hepatology, nutrition, neurogastroenterology, endoscopy, or inflammatory bowel disease in the NASPGHAN trainee database registry were invited to take the survey. Distribution of the survey was by email with embedded web link for the survey in Google Forms (Google LLC, Mountain View, CA). The email was sent on June 11, 2020. A single reminder email was sent on June 23, 2020 and responses were collected through July 1, 2020.

The survey consisted of single answer, multiple choice, Likert scale, and free text questions and was divided into 2 modules based on year of training. The first section included 12 questions directed to all fellows to measure impact on didactic education, clinical experience, research, and procedures. The second section included 2 questions for first- and second-year fellows regarding job outlook, and then included 14 questions for the graduating trainees (third- and fourth-year fellows) regarding their job search and plan after fellowship graduation. For questions using the Likert scale, a score of 4 or greater was considered positive. Geographical location was determined based the Census Bureau divided regions of the USA (Figure 1, Supplemental Digital Content, <http://links.lww.com/MPG/C156>).

Data are reported as frequency (percentages) when applicable with free text answers grouped into categories by the authors. Comparisons between groups was performed using χ^2 test and logistic regression as appropriate. Descriptive statistics were used to analyze responses including χ^2 test. A *P* value <0.05 considered significant for all inference testing. All statistical analyses were performed using R program (version 6.4.2). The survey study was reviewed and granted exempt status by the institutional review board at Orlando Health Arnold Palmer Hospital for Children, Orlando, FL, USA.

RESULTS

Of the 434 pediatric gastroenterology fellows in North America, 145 fellows (33%) responded to the survey (Table 1). Of the 145 respondents, 34 (23%) were first-year fellows, 58 (40%) second-year fellows, 43 (30%) third-year fellows, and 10 (7%)

TABLE 1. Demographics for survey respondents subdivided by self-reported residence and training regionality

	NASPGHAN fellows	Survey respondents	Nonrespondents	Response rate
Overall	434	145	289	33%
Year of training				
First	150	34	116	23%*
Second	155	58	97	37%
Third	108	43	65	40%
Fourth	21	10	11	48%
Region of residence/training				
South USA	104	39	65	38%
Midwest USA	92	38	54	41%
Northeast USA	93	35	58	38%
West USA	52	23	29	44%
Unspecified USA		1		
Mexico	58	5	53	9%
Canada	34	4	30	12%
Other [†]	1			

Differences between respondent and nonrespondents were evaluated by year of training and the four regions of the USA. There was a lower response rate observed within the first year of trainees but otherwise no differences. Statistical analysis performed by χ^2 -test with significance *P* value <0.05 denoted by.

*There was one respondent within the USA who did not specify region.

[†]One fellow did not specify location of training.

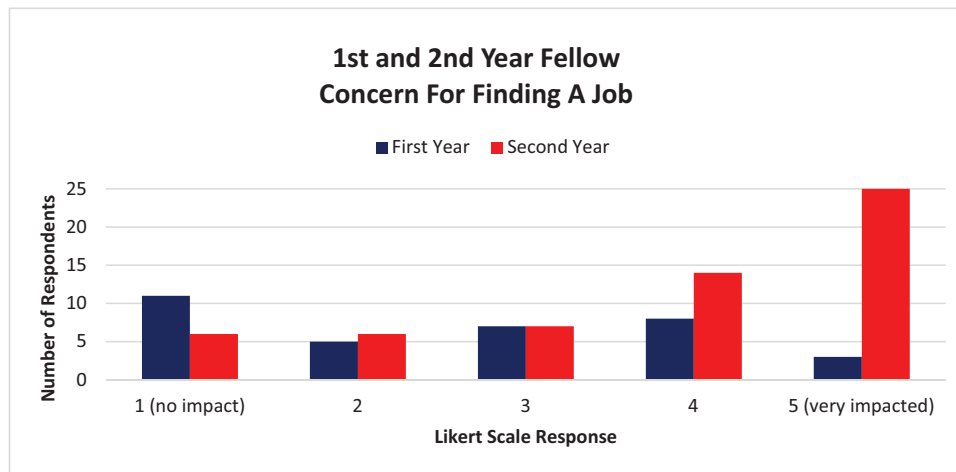


FIGURE 1. Level of concern among first- and second-year respondents for finding a job upon fellowship graduation.

fourth-year fellows. Response rate for each NASPGHAN fellow class in the 2019–2020 academic year was 23% for first-year fellows, 37% for second-year fellows, 40% for third-year fellows, and 48% for the fourth-year fellows. Fellows from the United States represented a total of 27 states, with 4 fellows from Canada and 5 fellows from Mexico. The response rates within the first-year fellow subgroup as well as two regions (Canada and Mexico) were statistically different than the total cohort response rate. One respondent did not denote a region of the USA for their training program.

Impact on Clinical Training: Didactic Teaching, Clinical Experience, and Research

Seventy-five (52%) respondents reported that their clinical experience was affected by the COVID-19 pandemic, and 60 (41%) believed their procedural experience was negatively affected (Table 1, Supplemental Digital Content, <http://links.lww.com/MPG/C157>). Regional specific differences within the USA were observed only in respondents from the Northeast USA reporting a significant impact on their clinical experience, odds ratio 3.7 (95% CI 1.4, 10.2); however, procedural experiences were not regionally affected.

Only 43 (30%) reported a negative impact in didactic learning. When asked to self-rate didactic learning resources, fellows listed the *Journal of Pediatric Gastroenterology and Nutrition*, American Academy of Pediatrics Prep GI questions, “Bowel Sounds” NASPGHAN Podcast, NASPGHAN Nutrition Curriculum, NASPGHAN Fellow’s Slides, and the American College of Gastroenterology Homeschooling Curriculum. Additionally, an interactive spaced learning platform for completing board practice questions that is supported by NASPGHAN was frequently used.

Sixty-five respondents (46%) reported a negative impact on research training, with a majority being second-year fellows (n = 35, 54%). At the time of the survey, 58 (40%) of the respondents had research accepted at an upcoming national conference that was subsequently cancelled due to COVID-19. Of those who believed their research was affected, 41 (63%) plan to modify their research including putting research on hold (n = 19, 47%), modifying the protocol or methods of the study (n = 12, 29%), and/or refocus their efforts onto a secondary project (n = 8, 20%). Research was not affected differently based on regions within the USA.

Impact on Job Outlook and Attainment

When asked about concern for finding a job after graduation, 50 (54%) first- and second-year fellows reported high level of concern (4 or 5 on Likert scale from 1 to 5) (Fig. 1). Of those who were concerned, the majority were second-year fellows (n = 39, 78%) (Table 2). Regarding steps taken towards job procurement that second-year fellows are considering for their own job search, 28 (48%) plan to start a job search earlier than planned and 8 (14%) reported that they would also consider taking a job outside of their current subspecialty training and in a general pediatric position (Table 3).

TABLE 2. Future plans for job search for second-year fellows

Second-year job search: future plans	n = 58
My plans have not changed	17 (29%)
Will now consider a fourth-year advanced training position or research year	18 (31%)
I plan to start my job search earlier than expected	28 (48%)
I will apply to both academic and private practice settings	18 (31%)
I will accept more clinical FTE	8 (14%)
Willing to take position as general pediatrician	8 (14%)
Willing to take position outside my ideal geographic location	23 (40%)

FTE = full time equivalent.

TABLE 3. Resource utilization in job search for graduating trainees

Third and fourth year job search: resource utilization	n = 41
Networking at national meetings/conferences	28 (68%)
Mentor/attending e-mail on your behalf	21 (51%)
Personal contacts	27 (66%)
NASPGHAN Job Board	26 (63%)
Direct e-mail communication to specific program/practice	29 (71%)
Recruiter	10 (24%)
Peds GI e-mail list serve	25 (61%)
Other physician job database	7 (17%)

GI = gastroenterology; NASPGHAN = North American Society of Pediatric Gastroenterology, Hepatology, and Nutrition.

Of the third- and fourth-year respondents ($n = 53$), 12 (23%) were continuing with advanced fellowship, 38 (72%) had a job contract signed at the time of the survey, and 3 (6%) did not have job contract signed at the time of the survey due to retraction of a prior job contract (Table 1, Supplemental Digital Content, <http://links.lww.com/MPG/C157>). Of those with a contract signed, 71% ($n = 27$) had this signed either on or before March 2020. Of those with job contracts signed, the most commonly cited job search resources included a combination of direct email to division directors ($n = 29$, 71%), networking in person at national meetings ($n = 28$, 68%), and reaching out to personal contacts ($n = 27$, 66%) (Table 3). Job contracts were altered in 18% ($n = 7$) of those with a signed contract at the time of the study. Two had a decrease in salary, three had a change in start date, and two had their contracts retracted. Of the total fellows with retracted job offers ($n = 5$), all of them were informed that a hiring freeze was the reason for retraction.

DISCUSSION

Many studies and opinion pieces have described how clinical training has been affected during the COVID-19 pandemic (2–5). This survey reinforces previous findings and elaborates on the impact believed specifically by pediatric gastroenterology trainees. NASPGHAN program directors previously reported a decrease in clinical, procedural, and research experience due to the pandemic (1). Our study found that the pediatric GI fellows feel this reduction in critical areas for all trainees has had detrimental consequences to clinical learning and decreased confidence in procedural skills, which are integral to pediatric gastroenterology. Clinical experience was significantly affected in the northeast USA, which may be expected given the high volume of patients suffering from COVID-19 at the time of this survey. Adult procedural specialties have also reported a decrease in procedure numbers and in-person clinical care with similar graduation concerns (5,8–13). Subsequently, the American Board of Surgery decreased graduation requirements for case numbers by 10% and some literature suggests a transition from time- or volume-based to competency-based graduation requirements (8,14,15). Although other procedural based specialties are discussing training extension or intensive mentoring upon first faculty appointment, pediatric residency and fellowship programs have not implemented extended training or other remedial efforts at this time (5,8). Possible mitigation strategies have been previously described by Mallon et al and include hands-off training opportunities, such as use of endoscopy simulators and virtual reality modules, if available, and training in interpretation of video capsule endoscopy and/or pH-impedance studies (1,13,16). Additional efforts may include use of objective assessment tools to gauge and document procedural competency of fellows approaching graduation, and intentional scheduling to ensure fellows maximize procedural opportunities (17).

We also evaluated impact on research and didactic learning. Research was particularly affected, echoing the findings in the survey of pediatric GI fellowship program directors (1). In our study, fellows reported they had or plan to modify their research plans, with the most common changes being suspending their primary project, pivoting to a secondary project and altering the methods of their primary project. These modifications include some strategies proposed by Mallon et al to combat a decrease in scholarly activity. For didactic learning, the majority reported transition to virtual platforms as a positive impact. This sentiment is not isolated to our trainee population; one program intensified and improved didactic schedule for residents on a nonclinical service and many others expanded virtual offerings with generally positive reviews (11,15,18). An alternative educational modality our respondents used was the podcast “Bowel Sounds,” (a NASPGHAN supported podcast of interviews from leading experts in the field of pediatric GI). Although unique strategies to take the place of in-

person learning have been developed, identifying strategies that overcome the impact on research has more challenges. Other mitigation techniques to support research could include additional meetings between program leadership, mentors, and fellows to discuss how their research projects are affected by COVID response then to develop contingency plans (Fig. 2). Reduced time in clinic and performing endoscopy could be addressed by ensuring trainees are involved in telehealth visits and procedural training that can be done virtually (ie, impedance probe, endoscopy simulators, and capsule endoscopy training). To make up for lost procedural experience, additional endoscopy sessions could be scheduled for affected trainees. These challenges are shared among all academic training programs, and continued work to develop and disseminate mitigation strategies is needed to avoid further limitations on scholarly contribution and academic career development.

Our data provide an early assessment of the effect of the COVID-19 pandemic on the job outlook and attainment for trainees. In our survey, 74% of 2019–2020 academic year graduating fellows had signed a contract for a faculty appointment or advanced fellowship by March 2020, before many states and hospitals began to take drastic precautionary measures. Unfortunately, up to 18% of graduating fellows’ job offers were altered for global pandemic with institution-associated hiring freezes as the reason noted for five cases of job offer retractions. This is similar to two survey studies of interventional cardiology trainees which noted hiring freezes affected up to 60% of secured jobs and 6% had retracted job offers related to the pandemic (5,10).

After the survey closed, it has become clear the pandemic will continue to have long lasting economic effects on healthcare systems and potentially have a larger impact on future graduating medical trainees (7,19). We found high concern regarding future job opportunities in the first- and second-year fellows, leading some to contemplate alternative jobs outside of their trained specialty. Unlike the respondents in the graduating class of 2020, future classes will be affected by COVID-19 during all stages of the job search. Although in-person networking is not reported in the literature as a significant source for job offers in adult residency and subspecialty programs, this survey suggests that in-person networking has a greater effect on the job search in pediatric gastroenterology than has previously been reported (20–23). For example, two-thirds of the survey respondents who had job offers at the time of the survey reported networking in-person at conferences as a crucial resource for their eventual job offer. This is of significant concern for future graduates, as all meetings have transitioned to virtual platforms for the foreseeable future.

The interpretation of our survey results is limited by the voluntary nature of responses collected over a short period of time, and by our low response rate of 33%. Despite low response rate, we did have good distribution of responses from each fellowship year. Nonresponse bias should be a consideration for future survey-based studies. For continued effect of the COVID-19 pandemic on GME, we plan to survey the pediatric GI fellows again in 6 and 12 months to assess job attainment and prospects, evaluate for perceived improvement in clinical competency, and identify new challenges secondary to the continued COVID-19 pandemic. The NASPGHAN leadership has implemented strategies to aid fellows in the new era of virtual networking and job search, and we also plan to evaluate the success of these mitigation strategies.

CONCLUSIONS

The COVID-19 pandemic continues to have a profound impact on the medical system and healthcare professionals, and pediatric trainees are no exception. Important mitigation techniques trainees used included virtual learning platforms, subspecialty podcast, research support to focus on retrospective projects, and

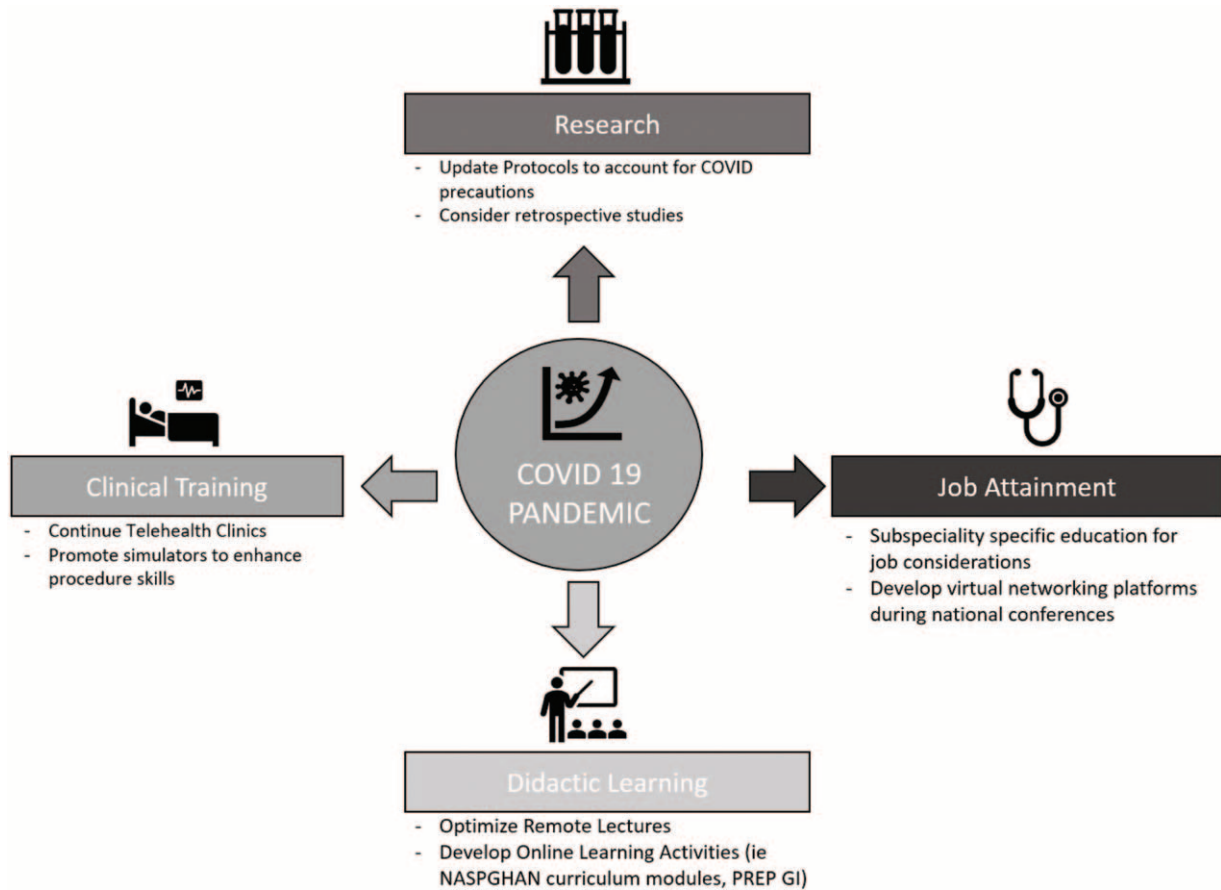


FIGURE 2. Mitigation efforts to support trainees during the COVID pandemic.

subspecialty specific conferences focused on job attainment strategies. Upcoming pediatric gastroenterology graduates have significant concern about their career outlook given ongoing hiring freezes and lack of in-person networking opportunities. Future development of virtual networking opportunities at annual professional meetings, such as the NASPGHAN Annual Conference, may help ameliorate these concerns. The long-term effects of COVID-19 on pediatric gastroenterology fellows remains to be seen. Follow-up surveys will be helpful to reassess the effectiveness of these changes to the educational experience, particularly in the area of job attainment for trainees.

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