The Fellow’s Perspective: The Impact of the COVID-19 Pandemic on Fellowship Training and Job Appointment

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Abstract

Background: Fellows have been uniquely affected by the widespread changes in educational structure, mandatory limitations in elective procedural volume, and hiring freezes during the COVID-19 global pandemic.

Study Design: A voluntary and anonymous survey was distributed to all Graduate Medical Education fellows at a tertiary medical center querying perspectives on clinical and didactic training and job placement.

Results: A total of 47 of 121 fellows (39%) completed the survey. The majority were in a medical (43%) or surgical specialty (34%) followed by critical care (13%) and procedure-based (11%) fellowships. Approximately 59% of surveyed fellows felt their programs were providing a virtual curriculum that would train them just as well as the in-person curriculum. Twenty-eight (60%) fellows were in their final or only year of training. Of the 25 fellows who were seeking employment, 52% have experienced difficulty in finding a job due to hiring freezes and 40% have encountered challenges with job interview cancellations and changes to virtual interview formats.

Conclusion: Almost half of surveyed fellows reported an educational deterioration due to COVID-19 and graduating fellows seeking employment felt hindered by both the virtual interview format and widespread hiring freeze. Fellows are both unique and vulnerable as they balance the solidification of clinical training with securing employment during these tumultuous and unprecedented times.

Keywords
COVID-19, SARS-CoV-2, fellow, employment, curriculum

Introduction

The COVID-19 (SARS-CoV-2) global pandemic brought drastic and sweeping changes to medical care on both the local and national levels. Elective surgeries were immediately suspended, outpatient clinics closed, and efforts to expand hospital capacity for COVID-19 patients were emphasized by the American Medical Association and American College of Surgeons.¹,²

Amongst all levels of trainees within medical education, fellows represent a group that has been the most detrimentally affected by changes made during the COVID-19 pandemic. Accreditation Council for Graduate Medical Education (ACGME) accredited fellows were required to fulfill additional COVID-related clinical duties while the decrease in non-COVID patient volume prompted concerns for meeting case-volume requirements for board eligibility. Meanwhile, the collective response and precautionary measures of hospitals nationwide precipitated large-scale furloughs, pay cuts, and institutional wide hiring freezes, which directly affected fellows who were apt to enter the job market.³-⁵

There are currently no published data regarding the effects of the COVID-19 pandemic on fellow trainees. As we have observed in the past few months, the pandemic is ongoing with possibilities of future surges. This study investigates the perspectives and concerns of fellows, so programs may modify their curricula and requirements in support of their current and future fellows.

Methods

At the time of publication, California has had 3 COVID surges: the first from March to June 2020, the next in July 2020, and then the third from December 2020 through the

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end of February 2021. Our institution responded to the March 2020 surge by closing outpatient clinics, canceling all elective and urgent surgeries, and directed a coordinated effort across all residency and fellowship programs to form COVID-response teams and provide medical intensive care unit (ICU) support. Each fellowship program responded differently with some initiating full deployment to the medical ICU, some rotating a fellow to a designated position and team, some becoming part of a COVID procedural team, and others integrating their call pool with the medical or general surgery residency program to provide staffing relief. Each fellowship program shouldered a differing range of COVID-related responsibilities, resulting in variable departures from their normal fellowship-based education or tasks. Our study focuses on the first surge which produced the most abrupt change from clinical norms.

A 23-question voluntary and anonymous survey was distributed to all fellows from both ACGME accredited and non-ACGME accredited fellowship programs at a single tertiary care medical center which has 74 fellowship programs. The survey was conducted from April 21, 2020 to May 4, 2020 during the first surge of COVID-19 cases within California. During this time, 3 reminder emails were sent to fellows to optimize response rates. This study was approved by the institutional review board.

A survey querying basic demographics, perspectives on clinical and didactic training, and occupational prospects was designed based on content from informal interviews with fellows and attendings. Pretesting of the survey was conducted using focus groups comprised both fellows and attendings. Through these focus groups, we ensured that important issues associated with the pandemic were included in the survey. In addition, focus groups were used to test drafts of the survey.

The survey consisted of a combination of binary, multiple-choice, ranking, and 5-point Likert scale questions. In order to maintain anonymity, the only demographic information inquired was gender, fellowship type, and whether the survey participant was in their final year of training. Fellowships were separated into surgical, medical, critical care, and procedure-based subspecialty types to determine if there were differences in experience following pandemic-related changes. A surgical subspecialty was described as one where most of the work was done in the operating room (eg, surgical oncology, gynecologic oncology, orthopedic surgery, or urology). A medical subspecialty was described as one where most of the work was done in an inpatient ward or outpatient clinic (eg, general cardiology, rheumatology, and inflammatory bowel disease). A critical care subspecialty was described

**Table 1.** Survey participant demographics. Data presented as n (%). P-value compares fellowship training program intergroup differences.

|                      | Fellows (n = 47) | P-value |
|----------------------|-----------------|---------|
| Which of the following best describes your fellowship training program? |                  |         |
| Surgical             | 16 (34)         | —       |
| Medical              | 20 (43)         | —       |
| Critical care        | 6 (13)          | —       |
| Procedure-based      | 5 (11)          | —       |
| ACGME accredited     | 37 (79)         | .050    |
| Final or only year of training | 28 (60) | .36     |
| Gender               |                  |         |
| Male                 | 26 (55)         | .69     |
| Female               | 21 (45)         |         |
| Prefer not to answer | 0               |         |

Abbreviation: ACGME, Accreditation Council for Graduate Medical Education.
as one where most of the work was done in a critical care unit (eg, pulmonology critical care, surgical critical care, neurology critical care, and anesthesia critical care). A procedure-based subspecialty was described as one where most of the work was procedural (eg, interventional cardiology and interventional gastroenterology).

Descriptive statistical methods were used to calculate frequencies and percentages of the survey response data. Intergroup differences between fellowship types were measured using the Kruskal-Wallis H-test with Bonferroni adjustment. Statistical analysis was performed with SPSS for Windows version 25.0 (IBM Corp, Armonk, New York, USA).

## Results

A total of 47 of 121 fellows (39%) responded and completed the survey (Figure 1). Median survey time was 9.4 (IQR 6.5-12.8) minutes. Thirty-seven (79%) fellows were enrolled in ACGME accredited fellowships (Table 1). The majority were in a medical (43%) or surgical specialty (34%) followed by critical care (13%) and procedure-based (11%) fellowships. Twenty-eight (60%) were in their final or only year of their training and were months from completing their fellowships.

When queried about the effects of the COVID-19 pandemic on their training, fellows were almost evenly divided regarding their concern for falling behind in their training with 45% either strongly concerned or concerned (Figure 2). A minority of fellows felt that their medical knowledge would be affected (2% strongly agreed; 26% agreed), but amongst those who perform procedures (n = 38), 20 (53%) felt that their procedural/operative skills would be diminished due to changes made during the COVID-19 pandemic. There was a significant intergroup difference between surgical and medical specialties regarding concerns of diminishing technical skills (P = .013). When asked if graduation should be delayed, 62% of all fellows reported they should graduate as planned.
Approximately half of fellows (13% strongly agreed; 40% agreed) felt their program was prepared to transition to a virtual curriculum (Figure 2). Additionally, 59% considered their programs were providing a virtual curriculum that would train them just as well as the in-person curriculum. In assessing requisite components of a virtual curriculum, fellows were asked to rank instructional strategies that were most important. Webex (Cisco Systems; Milpitas, CA) or Zoom (Zoom Video Communications Inc; San Jose, California) online format education (weighted score 4.3) followed by access to procedural/surgical videos (3.0) were considered most essential (Figure 3).

Twenty-eight (60%) fellows were in their final year of training and 25 (53%) had applied for a job (Figure 2). Of these fellows, 52% have experienced difficulty in finding a job due to hiring freezes, 40% have encountered challenges with job interviews being cancelled or changing to a virtual interview format, and 52% of fellows did not feel virtual interviews were of the same quality as in-person interviews (Figure 4). The majority (56%) were concerned they would not be able to obtain as desirable a job if the pandemic did not happen. Ultimately, 53% of survey responders felt that experiencing the pandemic made them become a better doctor.

**Discussion**

In response to the pandemic, our institution rapidly adopted web-based platforms for didactics and supplemented procedural volume with video-based education, similar to strategies employed across the country.6,7 The results of our survey demonstrate that fellows perceived virtual lectures, conferences, and journal clubs as the most important aspect of their curriculum during the COVID-19 pandemic mirroring a recent systematic review by Dedelia et al which describes the efficacy of videoconferencing in the dissemination not only of didactics but also interdisciplinary learning.8

Fellows are uniquely affected by changes during this pandemic as they are at the culmination of many years of training, solidifying clinical or procedural skills, and securing job appointments in the setting of widespread limitations on elective procedures and hiring practices.1,2,9-13 The first pandemic wave brought significant financial uncertainty to many institutions, preferring to implement hiring freezes in order to avoid employee layoffs in the future.13 Approximately half of the 25 (53%) fellows graduating and seeking employment felt that they will not be able to find a desirable job had COVID-19 not happened. Furthermore, since there were no wide inter-specialty differences, the struggle of job placement during the pandemic is likely one shared by fellows across all specialties. Amongst those interviewing, many describe changes to the interview format including a transition to virtual interviews, which was felt to be inferior to in-person interviews. The recent and rapid adoption of this technology for trainee recruitment and hiring has had variable success. Virtual interviews offer certain advantages such as...
decreased travel expenses, and several medical and surgical programs have published their transition toward virtual interviewing, many of which offer a positive experience with this new format. Still, several other studies report trainees did not feel they were able to convey themselves effectively compared to an in-person interview.

The business sector has been a longtime proponent of virtual interviewing and has been refining its use for several years. A 2015 report from Futurestep, a company specializing in professional talent recruitment, polled 700 industry executives and found that nearly 75% of their companies used real-time video platforms to interview candidates with positive feedback from candidates. Virtual interviewing will likely continue and undoubtedly improve as we continue to brace for further COVID-19 surges. Several tips for video-based interviewing learned from the business world that fellowship programs can educate on include (1) preparing your background for simplicity and ensuring adequate lighting and minimal echo, (2) testing your technology ahead of time, (3) dressing professionally, (4) practicing and preparing simple responses as clarity and brevity transmit better over video, (5) monitoring your body language and positioning, and (6) the camera should be at eye level and eye contact should be maintained by looking at the camera, not by focusing on the video screen below.

Our study has a number of limitations. These results are from a single institution which may limit generalizability. Further, California has experienced subsequent waves of variable severity which has further affected fellows in a manner that is not captured in this survey. The changes to normal practice, including the transition to video-based educational conferences and video-based interviews, will likely carry through to the future. Future studies are needed to explore the long-term effectiveness of these changes as they pertain to fellow recruitment and subsequent employment. Still, our study characterizes the dramatic impact the first COVID wave had on a generation of new and graduating fellows that will continue to shape the clinical landscape.

Conclusion
This is the first study to examine an in-depth perspective of fellows across all specialties during this COVID-19 pandemic. A transition to web-based education was most important to fellows, but graduating fellows seeking employment felt hindered by both the virtual interview formats and the widespread hiring freeze. The streamlining of web-based tools and resources should be a focus for programs looking to both educate their current fellows and recruit graduates.

Author’s Note
This article was selected for plenary presentation at the American College of Surgeons Southern California Chapter Annual Scientific Meeting, Santa Barbara, California, January 2021 (canceled due to COVID-19 pandemic).

Author Contributions
Adam Truong designed the analysis, contributed data and analysis tools, performed the analysis, and wrote the majority of the manuscript.Van Chau designed the analysis and wrote a critical portion of the manuscript.Farin Amersi and Taryne Imai designed the analysis, wrote a critical portion of the manuscript, and provided guidance and oversight.

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