



Gynecologic Oncology fellowship recruitment in the virtual era: An evaluation of program websites and survey of applicant preferences

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ABSTRACT

Objective: Virtual Gynecologic Oncology fellowship recruitment has altered how candidates and programs exchange information. This study analyzes programs' web-based content and the priorities of fellowship candidates.

Methods: Web-based materials of Gynecologic Oncology fellowship programs participating in the 2022 match were reviewed. An anonymous survey was emailed to applicants. Questions assessed importance of web-based materials on a Likert scale. Respondents were asked to rank factors from most to least important in their decisions to interview and rank programs.

Results: Of the 66 programs participating in the 2022 Gynecologic Oncology fellowship match, 62 (93.9%) had accessible websites. Over one-fourth (25.8%) of program websites did not list application requirements. Most (74.2%) websites contained requests for letters of recommendation, but fewer (48.4%) specified the preferred quantity or authorship. Residency in-service exam score requirement information was present on 61.3% of websites. Of 100 applicants invited to participate, 44 returned surveys (44% response rate). The median number of programs applied to was 60 (IQR 51–65). Web-based materials most important to candidates were application requirements and deadlines, letter of recommendation details, and in-service exam requirements. Interaction with faculty and program information received during interview days were among the most important factors in decisions to rank programs.

Conclusions: Gynecologic Oncology fellowship applicants surveyed in this study applied to nearly all participating fellowships. The content of web-based materials varies across program websites, particularly for application requirements, which applicants indicated as the most important electronically available material. Programs should have clear application requirements and provide clinical details on their websites.

1. Introduction

Starting in 2020, restrictions on travel and social interaction during the COVID-19 pandemic transformed the residency and fellowship interview process from an in-person to a virtual experience for the subsequent application cycles. Methods used by programs and applicants to exchange and gather information during the application, interviewing, and ranking process were inevitably transformed by the virtual format. Many programs deployed or revised applicant

engagement strategies, including program websites, social media platforms, FREIDA (Fellowship and Residency Electronic Interactive Database Access) or other online databases, or virtual "open houses" and other virtual events. The 2022 National Residency Matching Program (NRMP) Program Directory Survey demonstrated that the program website was the most relied upon virtual engagement tool, with 82% of program directors moderately or heavily relying on the program website (National Resident Matching Program, Data Release and Research Committee: Results of the 2022 NRMP Program Director Survey, 2022).

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Table 1

Web-based materials were reviewed for details related to personnel, program structure, and application requirements, as listed in this table.

Personnel	Program Structure	Application Requirements
<ul style="list-style-type: none"> • Program Director name • Program Manager/Coordinator name and contact information • Current faculty • Current fellows (if applicable) • Past fellows (if applicable) 	<ul style="list-style-type: none"> • Block diagram of fellow schedule • Link to fellow manual • Details of education curriculum • Details of clinical experience • Details of research timing and opportunities • Details of off-service rotations • Video of facilities or program • Salary, benefits 	<ul style="list-style-type: none"> • Reference to ERAS (Electronic Residency Application Service) • Common Application deadline • Interview dates • List of application requirements • Number of letters of recommendation requested • Authorship of letters of recommendation requested (e.g. faculty authorship, Standardized Letter of Evaluation (SLOE)) • In-service exam score requirement • List of American Board of Obstetrics and Gynecology (ABOG) requirements

Data from 2022 NRMP Applicant Survey indicates that applicants find it challenging to determine program traits and “fit” from web-based materials ([National Resident Matching Program, Data Release and Research Committee: Results of the 2022 NRMP Applicant Survey, 2022](#)). There is no current data assessing the content of web-based materials or applicants’ preferences regarding the virtual application process for the Gynecologic Oncology subspecialty fellowship match. This study analyzes Gynecologic Oncology fellowship programs’ web-based content and the priorities of fellowship candidates during the application, interview, and ranking processes for the 2022 application cycle.

2. Materials and methods

Web-based materials of all Gynecologic Oncology fellowship programs participating in the 2022 NRMP match cycle were reviewed for details related to application requirements, program structure, and personnel ([Table 1](#)). Websites were accessed in April 2022 following the fellowship application deadline to ensure the most updated versions of program websites were reviewed. Descriptive statistics were used to summarize data.

An anonymous, voluntary 27-question survey was sent to Gynecologic Oncology fellowship applicants after fellowship interviews were complete (Qualtrics, Provo, UT). Questions assessed demographics, number of programs applied to and interviewed with, and importance of 17 web-based materials on a Likert scale from 1 (not at all important) to 5 (extremely important). Respondents were also asked to rank 18 factors from most important to least important in their decisions to interview with programs, and 19 factors from most important to least important in their decisions to rank programs. An optional free-text response question, “What other details would be important to you for learning about programs during the application, interview, and ranking process?”, was also asked. The results from the survey were generated using Qualtrics software, Version September 2022 of Qualtrics (Copyright © 2022 Qualtrics, Qualtrics, Provo, UT, USA. <https://www.qualtrics.com>). Descriptive statistics were used to summarize the survey data with percentages for demographics, medians and interquartile ranges (IQR) for Likert scale responses, and mean values for ranking responses. For the optional free-text response, inductive coding was used to identify themes. This study was deemed exempt by the University of Wisconsin Minimal Risk Research Institutional Review Board, ID number 2022–0698.

3. Results

3.1. Website review

Of the 66 programs participating in the 2022 Gynecologic Oncology NRMP fellowship match, 62 (93.9%) had websites dedicated to the fellowship, and 4 (6.1%) had inaccessible or non-functional websites.

Regarding personnel, all programs with websites listed the program director and 60/62 (96.8%) listed the Program Coordinator and contact

information. Most programs (85.5%) listed current faculty, but fewer contained information about current fellows (80.3%) or former fellows (44%), even when excluding new programs for which current or former fellows would not apply.

Most program websites contained information about the clinical experience (85.5%), research opportunities (87.1%), and education curriculum (69.4%). It was less common for program websites to contain information about the fellow schedule (e.g., block diagram, descriptions of off-service rotations). Fewer programs had videos of the facilities or program (43.5%), and few had links to the fellow manual (8.1%) or salary and benefits (24.2%) ([Fig. 1a](#)).

Over one-fourth (25.8%) of program websites did not list any application requirements. Most (74.2%) websites contained information on the number of letters of recommendation (LOR) requested, but fewer (48.4%) specified the authorship requirements for these letters. Of programs who requested specific letter authorship, the most commonly requested was a LOR penned by the fellowship program director (48.4%), followed by the department chair (22.6%), the Standardized Letter of Evaluation (SLOE) (19.4%), and any Gynecologic Oncologist (14.5%). Information on in-service Council on Resident Education in Obstetrics and Gynecology (CREOG) exam score requirements was present on 61.3% of websites. Specifically, CREOG exam scores were requested by 51.6% of programs, not requested by 4.8% of programs, and listed as optional by another 4.8% of programs. More than a third of websites (38.7%) did not mention CREOG exam score requirements at all. Interview dates were listed by a minority of programs (24.2%). Most programs listed the common application deadline (80.6%), contained a reference or link to the Electronic Residency Application Service (ERAS) website (95.2%), and listed American Board of Obstetrics and Gynecology (ABOG) requirements for applying (56.5%) ([Fig. 1b](#)). No websites listed criteria used for screening applicants for interviews or selecting candidates for ranking.

3.2. Applicant survey

Of 100 applicants invited to participate, 44 returned surveys (44% response rate), which included 37 (84.1%) fourth-year residents and 7 (15.9%) post-graduates from a residency. 41 (93.2%) had allopathic medical degrees and 3 (6.8%) had osteopathic medical degrees. Most candidates trained at a residency with a Gynecologic Oncology fellowship program (61.4%), but 38.6% did not. Applicants applied to a median of 60 programs (IQR 51–65) and interviewed at a median of 18 (IQR 10–22).

Applicants identified a list of application requirements, application deadlines, LOR requirements, and CREOG exam score requirements and instructions for submission as the most helpful web-based content (median Likert 5; IQR 4–5). Of the queried items, those least important to candidates (median Likert 3; IQR 2–4) were a list of past fellows and their jobs after fellowship, a description of off-service rotations, a link to the fellow manual, a video of the facilities and/or program, and a description of salary and benefits. In general, website programmatic information was moderately important to candidates when deciding

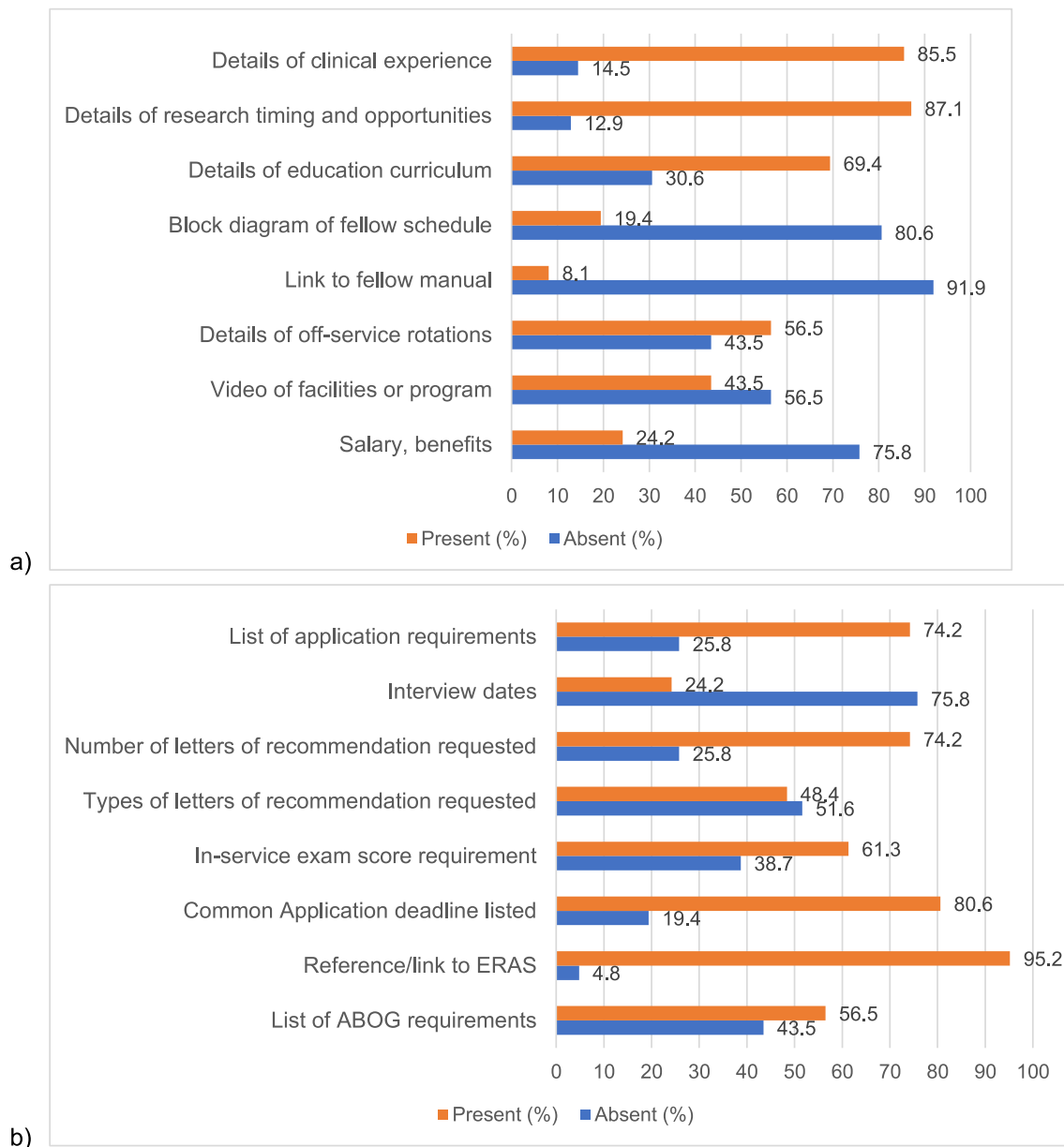


Fig. 1. a) Program structure components present or absent on fellowship websites. b) Application requirement components present or absent on fellowship websites.

whether or not to interview (median Likert 3; IQR 2–3.5), but less important when considering rank list position (median Likert 2; IQR 2–3) (Table 2).

When candidates were asked to rank 18 factors from most to least important in decisions to interview with programs, the top three factors were opinions from mentors, perceptions of surgical volume, and perceptions of program reputation. When considering rank list creation, applicants identified interactions with faculty during interviews, program information received during interview days, and surgical volume as the highest priority considerations (Fig. 2).

For the optional free-text response to the question “What other details would be important to you for learning about programs during the application, interview, and ranking process?”, 12 respondents (27.3%) entered a response. Inductive coding identified three main domains for which respondents expressed wishes for more information or improvements: websites, clinical details, and the interview day. The most common free-text response was related to clinical details such as volume, surgical experience, clinical sites, and chemotherapy experience (Table 3).

4. Discussion

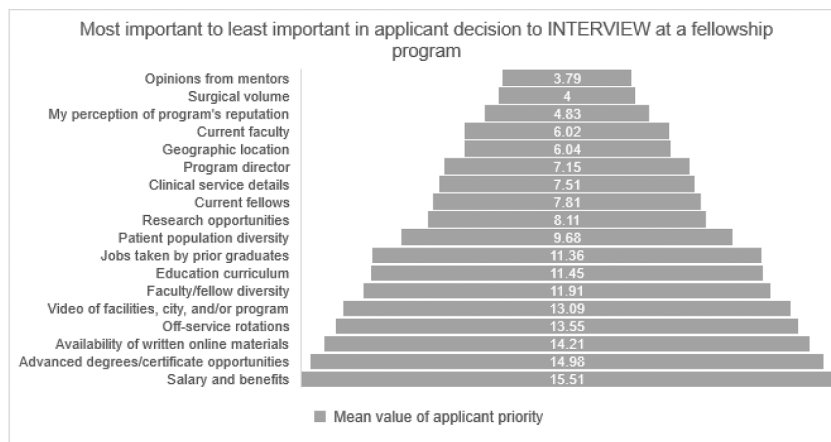
The 2022 NRMP data indicates that 94% of resident interviews in all specialties were conducted virtually. Further, 63% of residency program directors planned to continue virtual interviewing and 30% remained unsure (National Resident Matching Program, Data Release and Research Committee: Results of the 2022 NRMP Program Director Survey, 2022). Despite concerns about limitations in the virtual process for accurately assessing interpersonal interactions and program fit, recent data indicates that most Obstetrics and Gynecology sub-specialty fellowship faculty and applicants view the virtual interview process favorably. Two surveys of Obstetric and Gynecologic fellowships indicated that candidates and programs feel confident in the ability to adequately assess each other with a virtual platform, and that virtual interviewing should continue to be offered (Armstrong et al., 2022; Peyser et al., 2021).

Cost and work disruption are commonly cited disadvantages of in-person fellowship interviewing. A pre-COVID-19 pandemic study of the Gynecologic Oncology fellowship application and interview process

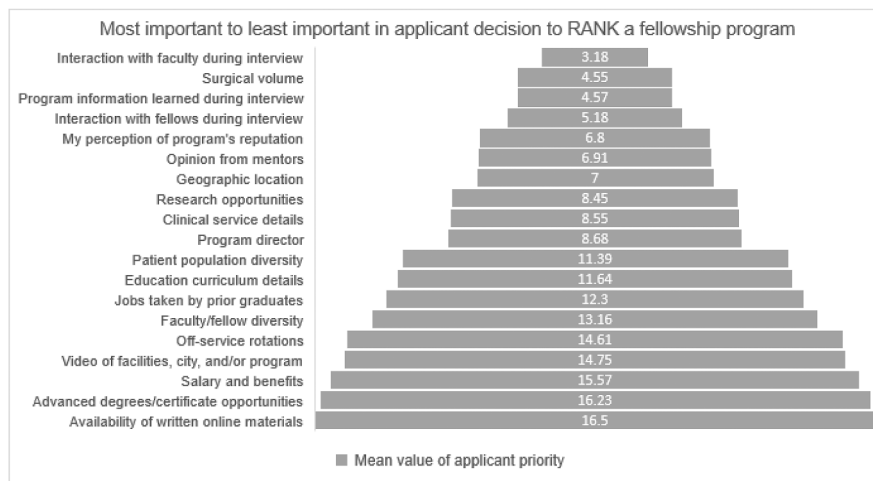
Table 2

Results of surveyed applicants who were asked importance of availability of web-based materials as listed here, on a Likert scale from 1 (not at all important) to 5 (extremely important). They were also asked how important the program’s website is for decisions to interview and rank.

Query: “How important is it to you to have this information electronically available during the application, interview, and ranking process:”	Median Likert score (IQR)
<ul style="list-style-type: none"> List of application requirements Application deadlines Description of number and type of letters of recommendation requested Whether or not CREOG exam scores are requested and how to send them 	5 (4-5)
<ul style="list-style-type: none"> Program manager/coordinator contact information List of current faculty List of current fellows Details of clinical experience Details of research opportunities Description of fellow schedule and/or block diagram Details of education curriculum List of interview dates List of past fellows and their jobs following fellowship Description of off-service rotations Link to fellow manual Video of facilities and/or program Description of or link to salary and benefits 	4 (4-5)
Query: “How important is the information found on the program’s website for your decision to interview?”	3 (2-3.5)
Query: “How important is the information found on the program’s website for your decision to rank?”	2 (2-3)



a)



b)

Fig. 2. Applicant responses for ranking most important to least important in decision to a) interview at and b) rank a fellowship program, ranked by mean value of applicant priority.

Table 3

Optional free-text responses to the question “What other details would be important to you for learning about programs during the application, interview, and ranking process?”

Theme	Responses
Websites	<ul style="list-style-type: none"> • “Having the application requirements online and the planned interview dates is incredibly helpful... if these were on one page it would be even better.” • “On websites, dates and materials wanted” • “Annually updated website” • “Updated website information” • “I found video tours of facilities on websites helpful”
Clinical volume, other clinical details	<ul style="list-style-type: none"> • “Straight stick vs robotic emphasis” • “Breakdown of cases robotic vs straight stick, benign vs oncologic” • “Number of clinical sites and service volume” “Number of hospitals to cover” • “Clinical volume (inpatient service)” • “Call schedule” • “Quality of chemotherapy experience” “Chemotherapy education structure”
Interview day	<ul style="list-style-type: none"> • “As much as possible having all the interviews be complete aka no faculty/fellows missing interviews” • “Any info we could review prior to interview if the interview intro wasn’t going to be comprehensive”

found that applicants spent an average of \$6000. Additionally, 37% of applicants reported difficulty arranging work coverage (Gressel et al., 2017). Potential benefits of virtual interviewing include a decreased financial burden for candidates and decreased time away from training which can mitigate stress and disruptions in work schedules.

With an increased and potentially permanent reliance on virtual recruitment strategies, it is imperative to evaluate Gynecologic Oncology fellowship applicants’ needs related to the application, interview, and ranking process. This study adds to the growing literature regarding virtual interviewing, is specific to Gynecologic Oncology fellowship, and focuses on an important virtual engagement tool – program websites. Evidence indicates that program websites are the most relied upon virtual engagement tool by program directors, yet key information was inconsistently available on Gynecologic Oncology fellowship program websites as found by this study (National Resident Matching Program, Data Release and Research Committee: Results of the 2022 NRMP Program Director Survey, 2022).

Our survey of applicants demonstrated that application requirements and deadlines, details regarding number and authorship of LORs, and CREOG score requirements were the most important available web-based content. Despite this, only 74.2% of websites listed application requirements, 48.4% provided details regarding number and authorship for LORs, and 61.3% contained guidance for CREOG score requirements.

Moving forward, we recommend all Gynecologic Oncology programs provide clear and updated application requirements, particularly because websites are a primary source of information when applying. A call for updated and accurate application requirements was emphasized in respondents’ free-text responses in this study. Further considerations include implementing a standardized set of application requirements for all programs, or displaying each program’s specific application requirements in a centralized location. Clear, updated, and potentially standardized application requirements on program websites would reduce candidate uncertainty and burden. A potential secondary benefit would be a reduction in administrative communication, as many applicants turn to e-mail communication with Program Coordinators or Program Directors to clarify application requirements. For fellowship programs, possible barriers to creating updated or comprehensive websites includes lack of personnel for content creation, time restrictions, and cost.

The presence of details regarding clinical duties and scheduling on program websites was also important to respondents in this study. The most common free-text responses were related to surgical volume and route, inpatient volume, number of clinical sites, call schedule, and details regarding chemotherapy education. A qualitative interview study of surgical fellowship applicants who participated in virtual interviews in 2020 found that candidates’ primary recommendation to program directors was to provide more information about the fellowship prior to interview day (Anteby et al., 2022).

Our results suggest that programs continue to work to provide comprehensive program information on websites and consider including specific clinical detail components as listed above. Despite suggestions that videos of programs, cities, or personnel could enhance virtual recruitment, respondents in our study did not find it very or extremely important to have videos as a resource during their application process (Ferriss et al., 2021).

Opinions of mentors and perception of program’s reputation were factors highly important to candidates and are not modifiable by changes to available online materials. However, interaction with faculty and program information learned on interview day were among the top three most important factors for ranking programs. Interestingly, surgical volume was among the top three most important factors in applicants’ decisions to both interview and rank Gynecologic Oncology fellowship programs. These results indicate fellowship programs should offer comprehensive information about the program on websites and during interview day and allow ample opportunity for interaction with faculty and fellows.

With a likely reliance on virtual recruitment in the years to come, aligning information provided by programs with candidates’ priorities can optimize the overall experience. This study provides valuable information regarding current information gaps and missed opportunities in the application process. These data should be used to guide Gynecologic Oncology fellowship programs in their program website and interview day design. At minimum, program websites should contain a concise and accurate description of application requirements. A standardized set of application requirements for all Gynecologic Oncology fellowship programs could further streamline the process for all.

CRedit authorship contribution statement

Lauren Montemorano: Conceptualization, Methodology, Formal analysis, Data curation, Writing – original draft. **Connor C Wang:** Methodology, Formal analysis, Writing – review & editing. **Ankitha Madde:** Writing – review & editing. **J. Stuart Ferriss:** Conceptualization, Writing – review & editing. **Bunja J Rungruang:** Conceptualization, Writing – review & editing. **Brittany A Davidson:** Writing – review & editing. **Ryan J Spencer:** Conceptualization, Methodology, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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