

Is the Orthopedic Fellowship Interview Process Broken? A Survey of Program Directors and Residents

Lasun O. Oladeji, MS, Stephen F. Pehler, MD, James A. Raley, MD, Joseph G. Khoury, MD, and Brent A. Ponce, MD

Abstract

Most orthopedic surgery residents pursue fellowship training. The fellowship interview process requires considerable time and financial investment from residents and residency programs.

We conducted a study of the time, financial, and program disruption impact the fellowship interview process has on residents and residency programs. Two mixed-response questionnaires were sent to orthopedic surgery residency directors and postgraduate year 4 and 5 residents. Responses were received from 45 program directors and 129 residents.

Sixty-two percent of the directors thought the interview process was extremely disruptive to their program. On average, the residents applied to 19 programs, received 14 interview offers, attended 11 interviews, were away from residency training 11 days, and spent \$5875 on travel. About 70% of directors and residents wanted changes made to the orthopedic fellowship interview process. Sixty percent of the directors wanted interviews conducted in a central location.

Our results highlight that time away from residency training, financial costs associated with the fellowship interview process, and disruption of the residency program are substantial.

Over the past several decades, an increasing number of orthopedic surgery residents have pursued fellowship training.¹ This inclination parallels market trends toward subspecialization.²⁻⁵ In 1984, 83% of orthopedics job announcements were for general orthopedists. Twenty-five years later, almost 70% of orthopedic opportunities were for fellowship-trained surgeons.⁶ Further, between 1990 and 2006, the proportion of practicing orthopedic generalists decreased from 44% to 29%.³ In 2007, the American Academy of Orthopaedic Surgery (AAOS) reported 90% of graduating residents were planning to pursue fellowship training.⁷ Rea-

sons for the explosion in subspecialty training are plentiful and well documented.²⁻⁵ Subspecialty positions now dominate the job market, further reinforcing incentives for residents to pursue fellowship training.

The past several decades have seen numerous changes in the orthopedic fellowship interview process. Early on, it was largely unregulated, dependent on personal and professional connections, and flush with the classic “exploding offer” (residents were given a fellowship offer that expired within hours or days). In the 1980s, as the number of fellowship applications surged, the Accreditation Council for Graduate Medical Education (ACGME) pushed for a more regulated process.⁸ To further standardize the system, the American Orthopaedic Association (AOA), the AAOS, and several other specialty organizations created the Orthopaedic Fellowship Match Program Initiative in 2008.⁹ Currently, all orthopedic specialties are represented in either the San Francisco Match Program or National Residency Match Program.

As the system currently stands, postgraduate year 4 (PGY-4) residents are required to interview across the country to secure postgraduate training. This process necessitates residents’ absence from their program, reducing educational opportunities and placing potential continuity-of-care constraints on the residency program. Despite the growing competitiveness for fellowship positions, the increasing number of fellowships available, the rising educational debt of residents, and the limitations of the 80-hour work week, the impact of the interview process on both residents and residency programs has received minimal attention.

We conducted a study to elucidate the impact of the fellowship interview process on residents and residency programs. We hypothesized the time and financial costs for fellowship interviews would be substantial.

Materials and Methods

We obtained institutional review board (IRB) approval for this study. Then, in April 2014, we sent 2 mixed-response questionnaires to orthopedic surgery residency directors and residents. There were 8 items on the director questionnaire and 11 on the resident questionnaire. The surveys were designed

Authors’ Disclosure Statement: The authors report no actual or potential conflict of interest in relation to this article.

to determine the impact of the fellowship interview process on residents and residency programs with respect to finances, time, education, and continuity of care. Each survey had at least 1 free-response question, providing the opportunity to recommend changes to the interview process. The surveys were reviewed and approved by our IRB.

An email was sent to 155 orthopedic surgery program directors or their secretaries. The email asked that the director complete the director questionnaire and that the resident questionnaire be forwarded to senior-level residents, PGY-4s and PGY-5s, who had completed the fellowship interview process. Forty-five (29%) of the 155 directors responded, as did 129 (estimated 9.5%) of an estimated 1354 potential PGY-4s and PGY-5s.¹⁰

The Survey Monkey surveys could be completed over a 3-week period. All responses were anonymous. Using Survey Monkey, we aggregated individual responses into predefined

clusters before performing statistical analysis. Descriptive statistics were generated with Microsoft Excel.

Results

Survey respondents represented all the orthopedic subspecialties (Table). Seventy-eight percent of residents applied to at least 13 programs (average, 19) (Figure 1). Ninety-two percent received at least 8 interview offers (average, 14). Eighty-three percent attended 8 or more interviews (average, 11). Seventy-one percent of all interviews were granted when requested, and 79% of all interviews were attended when offered.

Residents spent an average of \$5875 (range, \$500-\$12,000+) on the fellowship interview process (Figure 2). The highest percentage of respondents, 39.5%, selected an average expense between \$4000 and \$6000. Forty-nine percent of residents borrowed money (from credit cards, additional loans, family members) to pay their expenses.

Average number of days away from residency programs was 11, with 86% of residents missing more than 8 days (Figure 1). About one-third of residents reported being away from their home program for almost 2 weeks during the interview season. Further, 74% of residents wanted changes made to the fellowship application process.

Thirty-seven (82%) of the 45 program directors were from academic programs, the other 8 from community-based programs. Average number of residents in programs per year was 4 (73% of the programs had 4-6 residents per year). Respondents rated the disruption caused by residents' interview absences from 1 (least disruptive) to 10 (most disruptive) (Figure 3); the average rating was over 7 (high level of disruption). Although 9% of directors thought the process caused little or no disruption (rating, 1-3), 62% thought it extremely disruptive (rating, 8-10).

Thirty-one (69%) of the 45 directors agreed that the fellowship interview process should undergo fundamental change. Asked about possible solutions to current complaints, 60% of

Table. Fellowship Specialties of Survey Respondents

Fellowship Specialty	No. (%) of Survey Respondents
Hand	32 (24.8%)
Sports	29 (22.5%)
Arthroplasty	19 (14.7%)
Foot and Ankle	14 (10.9%)
Trauma	9 (7.0%)
Shoulder and Elbow	8 (6.2%)
Pediatrics	7 (5.4%)
Spine	6 (4.7%)
None	3 (2.3%)
Oncology	2 (1.6%)

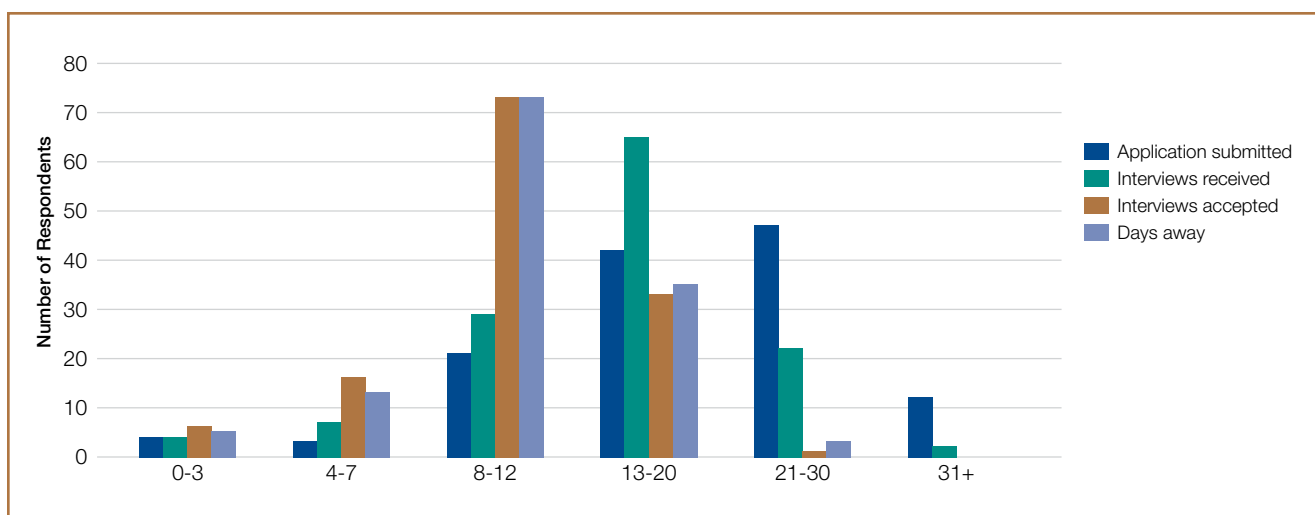


Figure 1. Application profiles of survey respondents.

the directors agreed that interviews should be conducted in a central location. Of the directors who thought fundamental change was needed, 59% indicated AAOS and other specialty societies together should lead the change in the fellowship interview process.

Both residents and program directors were given the opportunity to write in suggestions regarding how to improve the fellowship interview process. Suggestions were made by 85 (66%) of the 129 residents and 24 (53%) of the 45 directors (Appendix).

Discussion

Graduating residents are entering a health care environment in which they must be financially conscious because of increasing education debt and decreasing reimbursement prospects.³ Nevertheless, an overwhelming majority of residents delay entering practice to pursue fellowship training—an estimated opportunity cost of \$350,000.³ Minimal attention has been given to the potential costs of the fellowship interview process.

Our study results highlight that time away from residency training, financial costs associated with the fellowship interview process, and disruption of the residency program are substantial. On average, residents applied to 19 programs, received 14 interview offers, attended 11 interviews, were away from residency training 11 days, and spent \$5875 on travel. The great majority of both residents and program directors wanted changes in the current paradigm governing the orthopedic fellowship interview process.

It is reasonable to think that the number of days residents spend away on interviews would reduce the time available for education and patient care. Although unknown, it is plausible that residents of programs outside major metropolitan centers and residents who apply to more competitive fellowships may be forced to spend even more time away from training. Outside the focus of this study are the impact that residents' absence might have on their education and the impact of this absence

on the people who do the residents' work while they are away.

Mean fellowship expense was similar to that reported by residents pursuing a pediatric general surgery fellowship (\$6974) or a plastic surgery fellowship (\$6100).^{11,12} Unfortunately, we were unable to determine if average cost is influenced by choice of fellowship specialty or location of residency program. Regardless, fellowship cost may impose an additional financial burden on residents. According to the Association of American Medical Colleges (AAMC), the median salary for PGY-4 residents was \$56,380 in 2013. Therefore, on average, the fellowship process consumes more than 10% of a resident's pretax salary. For perspective, this equates to more than \$40,000 for a practicing orthopedic surgeon with a median salary of \$413,000.¹³ With an average medical student graduate debt of \$175,000 and continuing decreases in reimbursement, further financial hardships to newly graduating residents cannot be understated.^{5,11,12}

Almost 70% of program directors thought the fellowship process significantly disrupted their program. Reasons given for this disruption mainly involved residents' time away from the program and the resulting strains placed on maintaining adequate coverage for patient care. The overall disruption score of 7.4 out of 10 was consistent with the great majority thinking that the fellowship process negatively affects their residency program. Altering the fellowship interview process may provide unintended benefits to programs and program directors.

Both program directors and residents communicated that change is needed, but there was little consensus regarding how to effect change and who should lead. This lack of consensus highlights how important it is for the various orthopedic leadership committees to actively and collectively participate in discussions about redefining the system. It has been proposed that it would be ideal for the AOA to lead the change, as the AOA consists of a representative cohort of academic orthopedists and leaders across the spectrum of all fellowship specialties.¹⁴ Given the abundant concern of both residents

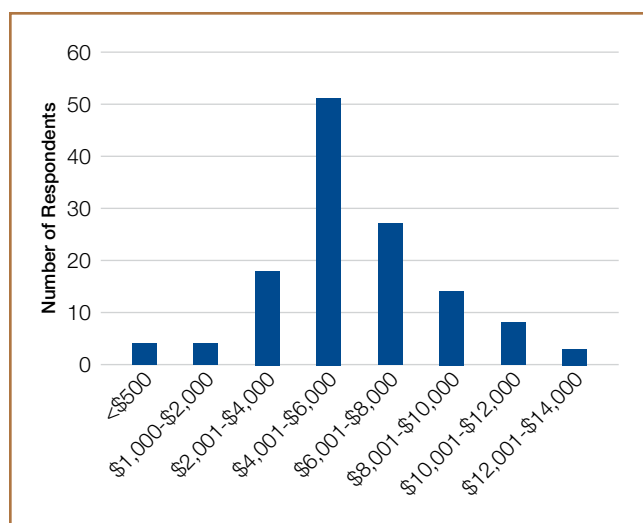


Figure 2. Financial expenditures during fellowship interview process.

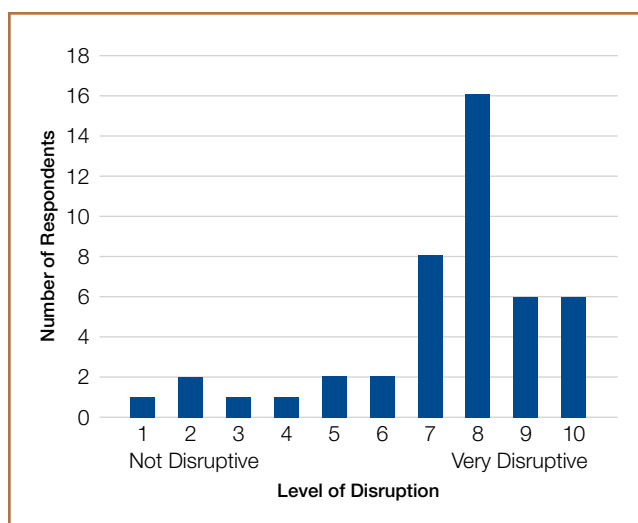


Figure 3. Disruptiveness of resident absences while interviewing for fellowships.

and program directors, we find it prudent to issue a call to arms of sorts to the AAOS and the individual orthopedic subspecialty societies to work together on a common goal that would benefit residents, programs, and subspecialties within orthopedics.

In trying to understand the challenges that residents, program directors, and programs face, as well as the inherent complexity of the current system, we incorporated respondents' write-in comments into suggested ways of improving the fellowship interview process. These comments had broad perspectives but overall were consistent with the survey results (Appendix).

Technology

Health care is continually finding new ways to take advantage of technological advances. This is occurring with the fellowship interview schema. Numerous disciplines are using videoconferencing platforms (eg, Skype) to conduct interviews. This practice is becoming more commonplace in the business sector. In a recent survey, more than 60% of human resource managers reported conducting video interviews.¹⁵ Two independent residency programs have used video interviews with mixed success.^{16,17}

Another technological change requested by residents is the creation and updating of fellowship web pages with standardized information. Such a service may prove useful to residents researching a program and may even lead to limiting the number of programs residents apply to, as they may be able to dial in on exactly what distinguishes one program from another before traveling for an interview. A recent study of orthopedic sports medicine fellowship programs found that most of these programs lacked pertinent information on their websites.¹⁸ Important information regarding case logs from current and former fellows; number of faculty, residents, and fellows; and schedules and facilities of interview sites are a few of the online data points that may help residents differentiate particular programs.^{19,20} Questions like these are often asked at interviews and site visits. Having accurate information easily available online may reduce or eliminate the need to travel to a site for such information. Standardizing information would also increase transparency among available fellowships. Although not specifically mentioned, organizational software that improves the productivity of the process may help limit the large number of programs applied to, the interviews offered and attended, the days away, and the financial costs without reducing the match rate.

Timing and Location

The issue of timing—with respect to geographical or meteorological concerns—was another recurring theme among respondents. Numerous respondents indicated that certain programs located in geographic proximity tried to minimize travel by offering interviews around the same time. This coordination potentially minimizes travel expenses and time away from the residency program by allowing residents to interview at multiple locations during a single trip per region. The sports

medicine fellowship process was identified as a good example of aligning interviews based on geography. Several respondents suggested an option that also reflects the practice of nonsurgical fellowships—delaying the interview season to bypass potential weather concerns. Winter 2013–2014 saw the most flight delays or cancellations in more than a decade; about 50% of all flights scheduled between December and February were delayed or canceled.²¹ Beyond the additional factor of more time away or missing an interview because of the weather are safety concerns related to the weather. One resident reported having a motor vehicle accident while traveling to an interview in poor weather conditions (Appendix).

National Meetings

Each orthopedic subspecialty has numerous national meetings. Many programs offer applicants the opportunity to interview at these meetings. One respondent mentioned that the annual meeting of the Orthopaedic Trauma Association offers trauma applicants the opportunity to interview with multiple programs. It might be beneficial to endorse this practice on a larger scale to help reduce travel and time away. We recognize that visiting individual programs is an important aspect of the match process, but doing so on a targeted level may make more sense, increasing financial efficiency and reducing time away from programs.

Proposed Solution

A combined proposed solution that can be implemented without a radical overhaul or significant investments might involve moving the interview season to early spring, switching to a 2-tiered system with a centralized first round of interview screening coinciding with subspecialty national meetings or the AAOS annual meeting, and standardizing online information for all orthopedic fellowship programs. A 2-tiered interview process would allow programs and candidates to obtain exposure to a significant number of programs in the first round without incurring significant costs and then would impose a cap on the number of programs to visit. This would level the playing field between candidates with more time and money and candidates who are more constrained in their training environment and finances. A stopgap or adjunct to residents or fellowship programs unable to attend a centralized meeting would be to combine technological tools, such as Internet-based videoconferencing (Skype), before site visits by residents. After this first round of introductions and interviews, residents could then decide on a limited number of programs to formally visit, attend, and ultimately rank. This proposed system would still be able to function within the confines of the match, and it would benefit from the protections offered to residents and programs. Although capping the number of interviews attended by residents clearly can lower costs across the board, we recognize the difficulty of enforcing such a requirement. These potential changes to the system are not exhaustive, and we hope this work will serve as a springboard to further discussion.

Our study had several inherent weaknesses. Our data came

from survey responses, which reflect the perspectives only of the responding residents and program directors. Unfortunately, a small number of orthopedic residents responded to this survey, so there was a potential for bias. However, we think the central themes discovered in this survey are only echoes of the concerns of the larger population of residents and program directors. Our hope in designing such a study was to bring to light some of the discrepancies in the fellowship interview process, the goal being to stimulate interest among the orthopedic leadership representing future orthopedic surgeons. More study is needed to clarify if these issues are reflective of a larger segment of residents and program directors. In addition, action may be needed to fully elucidate the intricate interworking of the fellowship process in order to maximize the interest of the orthopedic surgeons who are seeking fellowship training. Another study limitation was the potential for recall bias in the more senior PGY-5 residents, who were further from the interview process than PGY-4 respondents were. Because of the need for anonymity with the surveys, we could not link some findings (eg, program impact, cost, time away) to individual programs or different specialty fellowships. Although it appears there is a desire for a more cost-effective system, given the financial pressures on medical students and residents, the desire to match increases costs because students are likely to attend more interviews than actually needed. Our proposed solution does not take into account residents' behavior with respect to the current match system. For example, the prevailing thought is that interviewing at more programs increases the likelihood of matching into a desired subspecialty. Despite these study limitations, we think our results identified important points for discussion, investigation, and potential action by orthopedic leadership.

Conclusion

The challenge of critiquing and improving the orthopedic fellowship process requires the same courageous leadership that was recommended almost a decade ago.¹⁴ In this study, we tried to elucidate the impact of the PGY-4 fellowship interview process with respect to residents and residency programs. Our results highlight that time away from residency training, financial costs associated with the fellowship interview process, and disruption of the residency program are substantial and that both residents and program directors want changes made. Leadership needs to further investigate alternatives to the current process to lessen the impact on all parties in this important process.

Mr. Oladeji is Medical Student, University of Illinois College of Medicine, Peoria, Illinois. Dr. Pehler is Resident Physician, Division of Orthopaedic Surgery, University of Alabama, Birmingham, Alabama. Dr. Raley is Resident Physician, Department of Surgery, Georgia Regents University, Augusta, Georgia. Dr. Khoury is Assistant Professor, and Dr. Ponce is Associate Professor, Division of Orthopaedic Surgery, University of Alabama, Birmingham, Alabama.

Address correspondence to: Brent A. Ponce, MD, Division of Orthopaedic Surgery, University of Alabama, 1313 13th St S, Suite 203, Birmingham, AL 35205 (tel, 205-930-8552; fax, 205-930-8568; email, bponce@uabmc.edu).

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Appendix. Survey Respondents' Write-In Comments

Resident Portion of Survey

If yes to Question 8, would you like to see a change in the fellowship application process? And should the subspecialty societies provide a centralized time and location for all interviews?

Resident recommendations to improve fellowship process?

Categories: timing, centralized meetings, cost complaints, miscellaneous

Timing

- All interviews on weekends.
- Group them to the same month.
- Having a day to meet with all fellowship directors/staff with all interviewees over a day or two would be more helpful I think. Certainly cheaper.
- More streamlined interviews between programs to ease travel issues especially given the time of year they are conducted in.
- Having fellowships which are near each other coordinate dates so you could interview multiple places with one trip.
- Cluster interviews in blocks (Northeast, Midwest, West Coast). Don't interview in dead of winter when snow is a major factor especially if match isn't until end of May. Makes no sense.
- Regional coordination of interview dates.
- Interviews should be conducted in either the early fall or spring. Especially this year, weather played a significant role in missed interviews or increased stress for the whole process.
- Also, the way interviews can be scattered and the days they are offered make it difficult to have time to interview at them. Not all programs allow specific time off or adequate time off for interviews, which causes us to break rules to get to interviews and significant stress due to sneaking around.
- Multiple interviews at the same spot.
- Have all interviews during one-month time period.
- The ability to interview and see as many programs as possible without compromising training or increasing the burden on fellow residents.
- Sports has done a good job of trying to group interviews by regions of country as to combine travel and avoid overlap with other programs. Although some programs continue to make you choose based on the dates they offer for interviews.
- It is an extremely stressful process which takes too much time away from important rotations and education and ends up costing too much.
- It would be nice to have a regional interview weekend or days with the option to see a program and the facilities if you are interested.
- Interview season is very long, is over the winter when travelling can be very difficult. Travelling to multiple programs is time-consuming and expensive.
- 1) Coordinate fellowship interviews located in the same city to subsequent days so applicants can attend multiple interviews with a single flight/trip. 2) Coordinate interviews regionally—in addition to coordinating interviews in the same city, interviews in a particular region should be coordinated if possible so applicants can make shorter flights/drive from one location to a nearby location. The Sports Fellowship programs have done this well.
- But, that would come at a cost, as it is nice to see the city, see the hospital, etc., for each program. Limit fellowship interviews to be during one certain month each year.
- Coordinate schedule by region.
- Coordinate days. I liked traveling to each place and although expensive and tough to travel that much and make it back, it is good to see each program and city. I liked the time period being so far ahead, which will give me time to plan for the next year. I just hated the lack of coordination of dates of a few places.
- Abbreviate the process. August to May is too long.
- There were several programs in the Shoulder and Elbow match process that were in the same city that tried to coordinate their interview for same weekend/time period which was immensely helpful to cut down costs and travel time. From colleagues in other subspecialties, this was not the case; the more the programs could do to help coordinate some of their interview dates, it would make the process much less stressful and reduce costs for those of us that have families and don't have a financial buffer to spend on all the travel.

- Move to early in year to avoid weather setbacks.
- Regional interviews or have more information available about programs at beginning of application process. Have more information available about number of applicants and positions available. Also it would be nice if programs notified applicants regarding invitations and dates of interviews by a specific deadline, or within a limited window of time. This would help applicants to make more cost-effective travel arrangements.
- Weekends/end-of-week timing. Coordinated system to allow travel to one location and yet be able to accomplish multiple interviews.
- Programs should move interviews forward or backward a month or two (ie, fall or spring). There is no reason to be interviewing in the dead of winter when the weather is terrible. I personally drove through 2 blizzards this past year during record low temperatures. I know a fellow applicant who was in a MVC (motor vehicle collision) due to ice, and I personally narrowly escaped being in a really bad accident driving through one of the storms. In addition, I had to cancel 2 interviews due to flights being cancelled.
- Change the interview season to fall, spring, or summer. The match should be abolished. Instead of a match, there should continue to be a centralized application process handled by the subspecialty societies, and an interview season during which programs can offer and fill their positions in a rolling manner, like now occurs with medical school acceptance.
- Coordinating local programs to have interviews during specific times (same weekend, etc.) helps a lot. Please continue to do that.
- Interviews should occur in spring or fall to avoid weather-related travel issues.

Centralized Meetings

- More fellowship interviews at the annual AAOS meeting.
- Unnecessary interviews. They should be more selective and possibly conduct pre-interviews at the AAOS. Then candidates can have small site visit interviews after.
- Continued grouping by location/date to facilitate interviews in a city/region is helpful. This is done to some extent, but continued focus would be helpful.
- Central interviews with option to go see program at a later date.
- I interviewed at a total of 11 programs. Eight of these I traveled to their institution, the remaining 3 were at the AAOS. This was very convenient for me, as the academy meeting was in the same city as my residency. Financially this was beneficial. However, I think it is difficult to fully understand the ins and outs of a program without visiting their institution and talking to their current fellows.
- I think the geographic process of interviews worked well. My year, they went from West Coast to East Coast and I was able to do many of them back to back.
- Centralized interview process. More transparency. Definitely behind-the-scene dealings going on via third party.
- There were 4 programs with same day for interview. One gave an alternate day, 2 would not budge. I missed 2 interviews at top places because of this.
- A more centralized event for fellowship applicants to take care of multiple interviews in 1 trip.
- Centralized location possibly like at academy.
- Allowing applicants to link interviews together would be helpful especially if traveling a great distance. It would be helpful to only have to travel to the West Coast once or twice.
- Centralized interviews at AAHKS (American Association of Hip and Knee Surgeons) or the Academy meeting, time period for second visit, shorter match turnaround.
- A more centralized Hand application process rather than each individual program requiring a separate and often different packet of information and forms.
- For arthroplasty, pre-interviews could be arranged at the annual AAHKS meeting. This could allow programs to invite a select few applicants to on-site interviews and would save applicants a significant amount of travel cost.
- I don't need to fly to every city to interview. Every hospital is the same with clinics and ORs. There should be one meeting where everyone interviews every applicant and that's it. It's ridiculous. The match system is broken as well. It should go back to getting a phone call the day after the interview and the chairman getting you the spot. That way there are 3-4 interviews you go on and that's it.

Continued on page E450

Appendix. Survey Respondents' Write-In Comments (Continued)

- All of the faculty that are pre-match don't understand why we need to go on so many interviews now. It's because of the match.
- Have all interviews at a national meeting on the same day. If applicants are unsure about a city or hospital, they can choose to visit them on their own dime after this interview.
 - Centralized interviews at AAOS or subspecialty meeting with optional visits.
 - Centralization of interviews—very little need for site visits on different days.
 - Mass interview at AAOS.
 - More of a centralized process. Military programs allowing more non-sponsored spots.
 - Centralized interview at AAOS, specialty meetings.
 - Certainly there should still be an application process whereby programs can choose to interview only certain people. However, a centralized interview process that could take place at a national meeting, or another mutually agreed upon location, would significantly decrease cost and time away from the residency.
 - AGAINST centralization. It is important to visit the physical location of the fellowship. Centralized location would significantly hurt the process of evaluating programs.
 - Centralized location sounds great for regional interviews, West Coast, Midwest, South, East, to name a few.
 - I think a centralized time would be a great backup—but not for all interviewees. For example, at the Arthroscopy Association of North America (AANA) meeting.
 - Centralized interview dates would be difficult, but I did have several programs offer interviews during AAOS meeting.
 - A centralized time/location for interviews would save money, but I want to see the place, the fellows in their element, etc.
 - It seems to me that a centralized location for interviews would greatly decrease the time away from clinical duties. Detractors would say that you don't get to see all aspects of a program. We don't do that now; many places conduct their interviews at only one site in their enterprise. The chances of you seeing all of the environments in which you might work as a fellow are pretty low. There were several places I regretted traveling to after a short time during the interview day. What if I had met with the staff from each program at a specialty meeting and been given the opportunity to say thanks but no thanks to those that no longer interested me, and been able to arrange site visits for those programs that did seem like they might fit? All for the cost of 1 plane ticket? Seems too easy.
 - Having a day to meet with all fellowship directors/staff with all interviewees over a day or two would be more helpful I think. Certainly cheaper.
 - It would be nice if there were an option to interview at AAOS or AAOS with a subsequent second look at the fellowship location if one was truly interested and had the time.
 - One centralized location for all interviews.
 - Having a centralized application time and process would also help defray costs, but I do think getting to visit the cities and facilities is beneficial. However, I think the most beneficial part of visit vs a centralized location is meeting fellows and attendings outside of the interview and interacting with them in a more social setting.
 - Having a more centralized system would be immensely helpful. Trying to coordinate separate letters, application packets and accompanying material to each individual institution is time-consuming, stressful, and unnecessary; well, it is basically all the same except the addresses. This would make the process much more efficient, and less mistakes would occur. The application process stresses the whole department because as applicants we have to constantly check in with our attending assistants to make sure things don't get missed or not sent (and if applying to 10-15 places, many things do when they are all separate). This is further complicated when program websites are not updated properly or have incorrect contact information, which is fairly common.
 - I think programs can have a centralized location for interviews, but there is some intangible value for the applicant to travel to a program for a closer look. I can't say there is too much regarding the interview process that should change.
 - I had 18 interviews. When granted an interview, I asked to have it at the Academy. 12 programs said yes, 6 said no. I flew to the 6, spending around 6k. My program sent me to Academy—those 12 interview cost \$0!!!
 - If there was a centralized time for interviews, an initial interview process could take place. Then programs could later interview people they really like at their institution. I believe that a centralized time could be an opportunity for both applicants and programs to narrow down the search. Then applicants could have a good idea where they want to go, then only go to those places. Also programs would know who they want to interview more formally and only offer interviews to 6-8 people.
 - AGAINST centralization. I like the ability to see programs and their facilities, and I think a centralized process would take away from that. Maybe the ability to interview programs throughout a longer period of time, throughout the year, only on weekends or maybe even across multiple years to spread out time away from the residency program.
 - I don't believe a centralized time and location are a feasible option. A regional meeting in a large city may be a better option. For example, the Midwest programs could meet in Chicago on a weekend. This would allow the programs to interview applicants without conflicts as well as allow the fellowship applicants to save money on travel.
 - Interview everyone at International Pediatric Orthopaedic Symposium (IPOS).
 - After the applications are finished, I think there should be a centralized response where programs say yes or no, then a 2-week time period for fellows to accept or decline interviews, eliminating those that overlap. Interviews should be conducted in a centralized location with optional site visits to follow, possibly a maximum number of site visits allowed per resident.
 - Centralized interviews at the beginning of the season, then institutions could extend a secondary interview to an applicant to visit (keep this to 1-3 applicants). That way there are less interviews, but you still get to see and visit the institution you will be attending.
 - 1) Provide a centralized repository of information on fellowship programs that allows residents to compare programs characteristics easily (the OTA [Orthopaedic Trauma Association] does this very well—refer to their website: www.ota.org). 2) Although it seems like there is a push to coordinate all of the fellowship subspecialty interview seasons and match dates, it would actually be preferential for these to remain somewhat staggered. That way, all PGY-4s would not be gone interviewing at the same exact time. It would be easier for programs to have only a couple PGY-4s gone at a time on interviews rather than having all of them gone over the course of 4-6 weeks.
- ### Cost Complaints
- Too expensive and difficult to coordinate with residency.
 - Cost of interviewing.
 - Fellowship programs pay for applicant interview process for convenience and cost savings.
 - More places offering to cover hotel stays. Luckily in pediatric interviews, many programs offered deals or completely covered the hotel stay the night before or after the interview.
 - Programs and/or specialty societies provide lodging and transportation at a minimum.
 - Too expensive and time-consuming.
 - The travel cost is completely unnecessary. This only adds stress to an already trying time in our careers. Fellowships already make zero financial sense, why exacerbate the issue?
 - Too expensive, too much time away from residency.
 - Cost of application is very expensive. Filling out an application should not cost that much, and we should be able to apply to as many programs as we want without an extra charge.
 - Very expensive. I had to travel back and forth from one coast to another numerous times. Eliminate traveling for interviews in the wintertime when the weather is most likely to cause delays. Why, if we are interviewing 1.5 years before fellowship begins, do they have to do interviews in the wintertime?
 - Too much \$ and time away.
 - Less time away from clinical duties, less money spent on travel.
 - Time and cost.
 - Too expensive, too much travel, too much time away from residency, a lot of long travels for short periods of time in order to minimize time away from residency.

Continued on page E451

Appendix. Survey Respondents' Write-In Comments (Continued)

- It would be nice not to go broke trying to attend interviews. However, I do believe it is important to see programs firsthand. In general, you have to see so many programs to match that it costs a lot of money.
- Too much travelling and expenses.
- Too costly with travel, time away from OR.
- Cost and travel time was prohibitive.
- Cost.
- Too expensive.
- More programs providing lodging. Also don't charge more for increasing number of programs.
- Definitely too expensive. Good experience, but almost impossible given the cost for travel, etc.
- Save money. My decision to attend a fellowship was based on experience and personalities, not on facilities and location.
- Too cumbersome and time-intensive. The expense is large at a time when money is tight.
- Ease of interview attendance. Decreases cost.
- Fellowship programs should offset cost of travel and lodging.
- If fellowship interview expenses were supplemented by institutions, it would definitely help.

Miscellaneous

- It seems unusual to do a match when there are more positions than applicants. It is cost-prohibitive and definitely favors the programs over the applicants, as applicants are forced to go to many programs that they may not otherwise consider simply because there is no bargaining power or "communication" after interviews.
- In regards to Shoulder/Elbow, it was very confusing whether one should contact the program after interviewing. There apparently was a "strict" rule not to, but many places encouraged you to "let them know." I do not think there should be a rule. This would avoid ambiguity.
- Requires too much time off work (not from personal experience, but from what I have seen of others).
- No dramatic changes. However, video interviews could be granted to help alleviate travel costs.
- Detracts from surgical training, creates burdens for other residents not on interviews. Financially cumbersome.
- I think it has turned into too much like residency match, where people over-apply to programs and do a "shotgun" approach. This will continue to worsen unless there is some type of cap on the number of programs people apply to.
- It seems like there is a lot of behind-the-scenes discussion about applicants. I'm not sure if programs are truly ranking applicants based on their qualifications but instead based on their desire to attend a certain program.
- Although it is nice to see a program at its home base, there really isn't anything special in regards to the way a hospital or clinic looks to change an applicant's view of the program. Therefore, much time away from resident duties and the expense associated with travel could be saved by having a centralized interview process (eg, at the Academy).
- More detailed descriptions of programs would be helpful in narrowing down where to go on interviews. The only way to get to know a program is by going on the interview.
- Make it more streamlined so that we won't have to fill out individual applications. Limit the number we can apply to.
- The application process is inefficient, time-consuming, and expensive, and there appears to be many easy solutions to improve it that would aid programs and applicants. Flying to multiple cities (occasionally more than once to same city), hotels and other travel expenses are not budgeted in a resident's salary and many application decisions are made on things like: the flight to Cleveland is more expensive than the flight to Philadelphia.
- Hand needs to have an online application process.
- All fellowship interview processes should run like the ASES (American Shoulder and Elbow Surgeons). It is the most efficient and fair system.
- Limitation of number of programs residents can apply to.
- The current match system is not a true match. This is because it is an amalgamation of the old system, which was based on connections and attendings making calls on your behalf. Now, attendings attempt to help the applicant by calling on their behalf by engaging

- in these "behind closed door" tactics which eliminates the fairness of the match. For example, if an under-the-table commitment has been made by either the applicant or program that is later not honored, the applicant usually has no good backups. Despite information to the contrary, programs do ask applicants where they are in their rank list, which undoubtedly affects the applicant's standing, either positively or negatively.
- Improved efficiency.
- There has to be a better way.
- The match process makes applicants feel as though they should apply to and interview at many programs in order to successfully match.
- Better coordination of programs with interview dates and times would be helpful. Also, a centralized electronic application for Hand fellowships would also be very helpful. A deadline for offering interviews to applicants would allow applicants to book hotels/flights/etc. in a timely fashion rather than waiting until the last minute and paying more for such services.
- I was an applicant for a military fellowship that only had 1 program/application available. I would like to have had an opportunity to apply to more programs and interview with more programs. This is however unique to the military and my specialty.
- From talking to people who did fellowships before the match, it sounds like things were much easier and less expensive for them.
- Programs to abide by the process. Too much calling by programs to my mentors to see where I was thinking of ranking them. One program told my mentor that they didn't think I liked them sufficiently, as I did not have enough calls made to them after the interview.
- Most interviews felt like a formality, something that had to be done. They did not feel like they were always being used as a time to interview and differentiate applicants. I would've preferred more focus on the process due to the time and cost involved or decrease the cost.
- It's a necessary evil, not sure how it gets better.
- My program required me to use vacation days in order to go on fellowship interviews. I would like to see more programs providing 4th years a reasonable amount of time off for interviews that did not affect their allotted vacation days.
- Seeing the facility and staff/current fellows in their environment was a vital part of the interview process.
- I heard horrible stories about some residents not being able to take time away to interview. Luckily I was on a rotation where my schedule was flexible, so I was able to work weekends while I was at home so I could travel during the week and thus not have to take official vacation days. Is there some way there can be more standard days off/away so that we all get to go on the interviews we've earned?
- Be realistic with where you are willing to go and what your chances are to match. By that I mean the exact opposite of residency applications. Essentially applicants are by and large in the driver's seat and do not need to attend more than 5-10 interviews. However, there is a counterpoint in that interviewing at numerous locations offers a good reference point on putting the rank list together.
- I think it's important to go and see the facilities and meet with multiple attendings for the fellowship interview.
- Shoulder actually does an excellent job of organizing interviews and considering schedules. Still an expensive process, though, and a competitive field.
- My program does not allow days off to interview outside of vacation days. So to take an adequate number of interviews we have to make sure most interviews occur during off-site rotations (where they encourage us to take days off to interview because it is important) or have to sneak away from the university which is very stressful. From the interview trail, there are some programs that let residents take as many days as they need without penalty, and many make it like an active fight to get time off to interview. Often we just have to take days without notifying the institution, getting coverage from other residents and hoping we don't get caught, because we are out of vacation time. Having weekend interviews was a big help, as could fly overnight Friday and interview the next morning, but a midweek interview is a killer and puts residents in a very difficult position.
- I would encourage residents to apply and go on fellowship inter-

Continued on page E452

Appendix. Survey Respondents' Write-In Comments (Continued)

- views—you learn a lot about a place's culture, resources, and opportunities by attending interviews.
- First, there needs to be a better way of disseminating basic fundamentals about the cases being done by fellows. Programs should be required to make the case logs of graduating fellows available to applicants before the interview ever takes place. I could have excluded a number of programs based on the case volume or distribution being different than what I was interested in, and conversely I feel like I missed out on programs I would have liked by virtue of not knowing enough about them. Other basic data to have available pre-interview for every program would include number of fellows, number of faculty, number of sites covered by fellows, privileges granted (ie, junior attending, admitting, capable of running your own OR, etc.), and the primary practice model for the fellowship location (academic, privademic, community private practice, etc.). I don't believe interviews should be only at a subspecialty meeting, but an initial screening interview or even a set of overview presentations of the fellowship programs by the fellowship director at one of these would be ideal to find out if you are or are not interested in a given program and willing to spend the time and money to visit the site for a more complete or formal interview.
 - I think that it is important for the applicants to be able to visit the prospective fellowship sites in order to get a better feel for the program and location.
 - I think it's necessary to see the fellowships in their element to get a real sense of them. I do not believe that conducting interviews in a centralized location will give applicants a true flavor for the programs.
 - The system as it is functions too much as a hybrid system. Not all programs let the match run the way it is meant to be run, with programs and residents ranking each other purely by how much they like each other. There are a lot of discussions between program directors and attendings calling on behalf of residents. That works fine if we go back to the old way and all it was a handshake and a phone call and you got your fellowship. It saved a lot of money, and most attendings that went to my residency went to only 1-3 interviews, and that is how it was until they started the match. Since then, we have seen many residents tumble out of their rank list and end up scrambling if they did not get their first choice. There is a lot of politics involved now, and in order to protect yourself from tumbling, you feel forced to go on numerous interviews.
 - Get rid of the match and go back to the old system.
 - Limit the number of interviews one can have. I wasn't equally interested in the 20 fellowships to which I applied. I was actually interested in less than 10. But even my specialty, historically noncompetitive, is becoming increasingly so. Fellowship "match" threatens to become like residency match, ie, a horrid process.
 - Either make it a true match process or keep as it was in the past.
 - Seeing the actual location of programs did not change my mind on any programs. My decisions were based primarily on word of mouth, interaction with attendings during the actual interview, and supplementary information/documentation.
 - Limit the number of programs applicants can apply to or decrease cost somehow.
- Program Director Responses**
- I think a central screening process or phone interviews followed by targeted interviews to just 3-4 places would streamline the process and minimize disruptions to service.
 - Have subspecialty societies agree on a tight range of dates to offer fellowship interviews. AAOS can coordinate and approve. Adopt and regulate with penalties for violators, much as San Francisco Match Program currently does.
 - Interview in spring months to avoid weather delays. Start after the Academy meeting.
 - The problem with centralizing the process is that residents rightly want to see the place they are applying to. We had few problems with the process before all the fellowships went to a match. That's a big part of the problem. Get rid of the match for fellowships.
 - Centralized location (each fellowship can have different date), one/year—end of story. Residents tend to apply to one type of residency. The current system is MORE than disruptive.
 - There are many factors:
 1. Applicants need to see the physical location of the fellowship, and they should meet current fellows and have an opportunity to talk to them. Remote-site interviews put the applicant at a tremendous disadvantage. As program director (PD), I am willing to deal with the consequences so that residents can visit the fellowship.
 2. Scheduling of interviews is very disruptive to the daily operations of the residency and the hospital.
 3. A centralized scheduling process to arrange interviews that optimizes timely coordination of interviews and minimizes disruption for all (applicants and fellowship programs) would be the ideal.
 4. Assuming different residents are applying in different specialties, scheduling of interviews by specialty should avoid overlapping in order to minimize disruption of residency and hospital/patient care operations.
 5. Resident paranoia about not matching is understandable, and is facilitated by many factors. As long as fellowship positions remain highly competitive, it will be hard to fairly and reasonably control residents' interviewing at a multitude of programs.
 6. Our department policy is that applying residents must take vacation time if they are away at interviews more than 7 workdays.
 - Could do by regions.
 - Some way to centralize this process would be great. Some residents have 10-12 interviews and must miss this time on a single rotation. For us a rotation is 10 weeks, and they often miss a couple. Plus if there are annual meetings like AAOS, then there is more time off or discourage fourth years from presenting research. It's a tough balance, but there has to be a better solution. Maybe regional interviews?
 - Weekend interviews to allow for fewer days away from home program.
 - Limit time away and expense.
 - Use telephone or Skype and then a central meeting spot.
 - Cap the number of programs that a resident can apply to, the number of interviews that a resident can go on, and the number of residents that the fellowship can rank?
 - Visiting the campus of the fellowship gives the resident information about the program that he/she would otherwise be blind to. However, all parties would benefit if costs and time away could be reduced.
 - Not sure, but centralizing this is one idea that would save everyone's time, and the residents would save money. Medical students interview far and wide because they are looking for a job. Residents have a job and responsibilities to fulfill. My residents are neglecting job duties to interview—to the detriment of the program and themselves. I agree that we need to change the process.
 - It would be nice to have the option of a central interview location, but in the end there is no substitute for going to a program you are highly considering and getting the feel of the place. The travel they need to do is burdensome, however. We are considering limiting interviews because of this.
 - The current match system is bad because it is not a "true blinded" match. It has elements of the worst of all systems. Not sure how to make better.
 - It would be nice to have it all done in one location at one time, but it can be difficult for the applicants to get a true feel of the programs without an on-site visit.
 - I don't have any creative ideas on this, but a central process would be helpful.
 - Two things I don't like about the process: one is the expense for the applicants. I have several residents who have been offered a "take it or leave it" interview inside of a 2-week time frame—very difficult to get cheap tickets for that. This is on top of the "new normal" of everyone having to go to 8-10 interviews instead of being able to accept a fellowship offer given after 4 interviews or so. This is a very expensive hit on the residents. Still not sure I am sold on the benefits of the match for all subspecialties. Second concern is: with the number of interviews, if every PGY-4 in my program went to 10 interviews and only took 1 day off of work to do so, that is 50 days off services. Really no way to do the extensive travel and only miss 1 workday, so they probably miss 15-20 days each (75-100 days total from program). Sadly, most of this time is all in January/February, so the rotation block during that time is always hit hard with PGY-4 absence, and the residents will not see their PGY-4 rotations again as a PGY-5 in my program, so they just miss it. Staggering the application process would help with this from a timing perspective.

Continued on page E453

Appendix. Survey Respondents' Write-In Comments (Continued)

- I don't think you can have a single process for interviews.
- I think that the fellow candidate should visit the institution and get a firsthand look at the lay of the land and visualize where he/she would potentially be working. I think there is significant value for that for both sides.
- Specialty society meetings should allow for interviews. This would take away a single day for the faculty involved and allow an educational experience for the potential fellows along with a limited time away from their duties and less of an expense. The AAOS should encourage/require specialty societies to make this happen. It is already occurring in some.
- Limit the amount of programs candidates can interview at. Set it as a high number, 10-12. The amount of time away is currently excessive, and no program director wants to limit the number of interviews. It needs to come from a higher level.
- Centralized interview day at either a major meeting or separately.