Deconstructing the Process of Applying for Away Rotations in Orthopaedic Surgery

Jeffrey D. Tompson [1], Rabia Qureshi [2], Mary K. Mulcahey [3]

Corresponding author: Dr Mary K. Mulcahey mary.mulcahey.md@gmail.com
Institution: 1. Rutgers University - New Jersey Medical School, 2. Drexel University College of Medicine, 3. Tulane University School of Medicine
Categories: Medical Education (General), Students/Trainees, Selection

Abstract

Background: Orthopaedic surgery is among the most competitive specialties available to medical students in the Match and away rotations have proven essential for improving the chance of matching. Many programs utilize the centralized Visiting Student Application Service (VSAS) to accept applications; however, participation is variable and programs may have additional requirements outside of the VSAS application.

Methods: All ACGME (Accreditation Council for Graduate Medical Education) orthopaedic surgery residency programs accepting applications for away rotations in 2016 (n=158) were identified using the Fellowship and Residency Electronic Interactive Database (FREIDA) of the American Medical Association (AMA). Application requirements were recorded for all programs as found within the VSAS application portal and program maintained websites. Programs affiliated with the military were excluded (n=8).

Results: Of the 150 programs, 124 (83%) accepted applications using VSAS. Programs that participate in VSAS require the main components pre-listed within the application more consistently than non-VSAS schools: photo (VSAS: 95%, non-VSAS: 35%, p<0.001), CV (VSAS: 86%, non-VSAS: 38%, p<0.001), transcript (VSAS: 93%, non-VSAS: 38%, p<0.001), and immunization form (VSAS: 93%, non-VSAS: 81%, p=0.056). Additionally, non-VSAS programs require USMLE score reports (31%), supplemental applications (46%), and a Letter of Good Standing (23%) more often than VSAS participants (USMLE: 6%, separate application: 2%, Letter of Good Standing: 3%).

Conclusion: While most orthopaedic residency programs utilize the centralized VSAS to arrange for visiting medical students, there is considerable variability among application requirements for each elective clerkship. As an orthopaedic community, we should work towards streamlining the process by encouraging 100% participation in VSAS, expanding standard requirements, and eliminating extraneous supporting documents.
Keywords: orthopaedic education, away rotations, clinical clerkships, acting internship, Visiting Student Application Service (VSAS)

Introduction

Orthopaedic surgery is consistently among the most competitive specialties available to fourth year medical students in the Match. As such, the recommended applicant profile for medical students applying to orthopaedic surgery residency programs continually increases in competitiveness, including improved board scores, honors in third-year clinical clerkships and orthopaedic rotations at home and away programs, and multiple research experiences resulting in publications. It is difficult to find consensus among applicants and program directors as to which aspects of the application are most important for a successful match, largely due to the varying expectations within each orthopaedic residency program. Although the standards at programs may differ, a recent survey revealed that the majority of program directors consider performance during an away rotation to be one of the top three factors influencing how to rank an applicant.

The visiting clerkship or the "away" rotation has become a critical factor in the orthopaedic residency application process in recent years. Students complete either two- or four-week rotations as an acting-intern – alongside competing medical students, current residents, and attendings. From these rotations, students gain valuable clinical experience and they may also receive additional support for their residency application in the form of letters of recommendation and contacts. Additionally, many programs preferentially grant interviews to rotating students and several studies demonstrate that doing an away rotation at a program increases an applicant's chance of matching at that institution. In 2009, a study by Baldwin et al. demonstrated a significant increase in the odds of matching into an orthopaedic residency program when completing two or more away rotations, in addition to a rotation at the home institution. Equally competitive specialties (e.g. plastic surgery) also use performance during an away rotation as a major factor in determining who to interview and ultimately how to formulate their rank list.

The Visiting Student Application Service (VSAS), which is supported by the Association of American Medical Colleges (AAMC), was created to standardize and streamline the process of applying for elective clerkships in every medical and surgical specialty, including orthopaedic surgery. This system allows current fourth-year medical students at Liaison Committee on Medical Education (LCME) accredited institutions to submit a single application that can easily be assigned to multiple programs. Additionally, students have the ability to submit supplemental documents such as immunization forms, curriculum vitae (CV), photo and transcripts directly within the application portal. Participating programs may choose to add or remove requirements to create a program specific application. Despite the attempt to create a single application service with similar application materials, many institutions choose to use their own immunization forms or supplemental documents in addition to the baseline VSAS requirements. Other institutions choose not to use VSAS and accept applications directly from students, often while maintaining their own list of supporting materials. To complicate matters further, each program selects their own schedule for the application process, releasing the course catalogue and accepting applications in accordance with their individual academic calendar.

The purpose of this study was to evaluate the current application requirements necessary for securing an orthopaedic surgery visiting clerkship and to evaluate the system most commonly used in this application process. We also sought to determine if there were meaningful differences between programs accepting applications through VSAS compared to those which maintain their own application process and to identify any barriers for students applying to orthopaedic visiting clerkships.
Materials and Methods

All ACGME (Accreditation Council for Graduate Medical Education) orthopaedic residency programs accepting applications in 2016 (n = 158) were identified using the Fellowship and Residency Electronic Interactive Database (FREIDA Online) of the American Medical Association (AMA) for inclusion in the study. Programs affiliated with the military (n = 8) were excluded from the analysis. The remaining orthopaedic programs (n = 150) were cross-referenced with the VSAS database to determine participation. For each program, participation in VSAS, the course catalogue release date, and application due date were collected. Program specific requirements such as photograph, CV, transcript, immunization form, passing scores on USMLE Step 1 with official report, BLS/ACLS certification were also recorded. The use of supplemental documentation such as letters of recommendation, a personal statement, a Letter of Good Standing, and separate program application forms were noted.

Data was gathered directly from VSAS for participating programs and verified using individual program websites. For programs that do not participate in VSAS, all data was collected from the institution's self-maintained website. When there were inconsistencies between the two sources of information, an inquiry to the designated program contact was utilized to clear up the source of confusion. Data collection was performed in April-May 2016 and verified by two authors (RQ, JDT).

Statistical analysis was performed using Microsoft Excel (2015). Proportions of schools participating in VSAS and application requirements were recorded. Programs were separated into two groups based on VSAS participation for statistical analysis.

There was no internal or external funding required to complete this work.

Approval of the study was granted by the Institutional Review Board (IRB) of Drexel University. Data was gathered from publicly available databases and the voluntary survey was distributed to the PDs of all AGME accredited orthopaedic surgery residency programs.

Results

In the United States, there are 158 ACGME accredited orthopaedic surgery residency programs, 150 of which are civilian programs and thus were included in the analysis. The host school elective course catalogue release dates varied widely between January 15th and May 31st of a given year. The date at which each program began accepting applications demonstrated a similar erratic pattern, starting as early as January 31st and extending to June 15th. Of the 150 programs included in our study, 124 (83%) allow visiting students to submit applications through VSAS, while 26 (17%) programs accept applications directly (Table 1).

Programs that participate in VSAS require the four main components pre-listed within the application service more consistently than non-VSAS schools: photo (VSAS: 95%, non-VSAS: 35%, p < 0.001), curriculum vitae (VSAS: 86%, non-VSAS: 38%, p < 0.001), transcript (VSAS: 93%, non-VSAS: 38%, p < 0.001), and immunization form (VSAS: 93%, non-VSAS: 81%, p = 0.056). Although the requirement for an immunization form was not statistically significant between the two groups, the utilization of the AAMC standardized immunization form was more commonly accepted by the VSAS programs (54%) compared to the non-VSAS programs (23%) (p = 0.003). Additionally, significant differences were noted in requirements for USMLE Step 1 score reports (VSAS: 6%, non-VSAS: 31%, p < 0.001), separate paper applications (VSAS: 2%, non-VSAS: 46%, p < 0.001), and a Letter of Good
Standing provided by the applicant's home school (VSAS: 3%, non-VSAS: 23%, p < 0.001). Several other types of supplemental documentation (e.g. personal statement, letter of recommendation, mask-fit and OSHA training, BLS certification, drug screen and confidentiality agreement) were requested by less than one in five programs, with a similar percentage in each of the two groups (p > 0.05).

Discussion

Due to the competitiveness of matching into orthopaedic surgery, away rotations serve an increasingly important role in the selection process. Applying for visiting clerkships can evoke stress regarding program selection and compiling application materials, while at the same time attempting to meet all responsibilities of third-year clinical clerkships. The AAMC created VSAS as a standard and centralized portal for away rotation applications to reduce the complexity of the process; however, there remain numerous inconsistencies among the 124 participating institutions.

VSAS Participation

The majority of ACGME accredited orthopaedic surgery residency programs use VSAS as the primary means of accepting applications for medical student away rotations. The baseline requirements for VSAS programs are fairly uniform, with most programs requesting the four main components pre-listed on the VSAS website (photograph, CV, transcript, and immunization form). Interestingly, many of the non-VSAS programs require at least 2 of these 4 basic components. In addition to the standard application materials, both VSAS and non-VSAS programs provide a checklist of supplemental application requirements. Additionally, once a student applies for an elective within VSAS, a verification form is automatically generated and sent to his or her medical school to provide supporting information about the student's current academic status. VSAS requests that the student's medical school complete the form and submit it directly to the host program (Table 2). Ultimately, the application checklist for all elective clerkships in orthopaedic surgery result in a similar application, whether the materials are uploaded to VSAS or are sent to the host programs directly from the student's medical school. There was little difference when comparing the percentages of required supplemental application materials between VSAS programs and non VSAS programs, further supporting the idea that both types of programs have similar applications.

While the majority of orthopaedic residency programs have similar requirements for away rotation applications, there is no centralized resource available to clarify the application process for specific programs. In order to submit a complete application, applicants must review both the institutional and departmental websites to verify that the program accepts rotating students and to compile the application checklist. Even for VSAS programs, students similarly need to review the program websites for requirements, as additional documents and application instructions may be found only on the individual program web pages. Regardless of whether this discrepancy is due to a formatting error or a failure to list current information, it becomes evident that a streamlined application process and a centralized portal would be a valuable resource for applicants.

Additionally, within VSAS, each institution can provide a hyperlink to their own web page, thereby creating direct access from the application portal to the most up to date information for the program. Most programs choose to utilize this function, however, some programs provide up to four links (e.g. institution website, visiting student website, elective catalog, and standard health requirements), while others do not provide any direct access to their program's website. Inclusion of functional and accurate links for each institution would allow for easier access to specific application instructions for visiting students.
Immunization Forms

Perhaps the largest hurdle in the entire application process is the immunization form, which is of serious concern to students applying for away rotations. There appears to be no agreement among orthopaedic residency programs about which vaccinations and titers are required. Even among those participating in VSAS, there is a reasonable amount of variability in the immunization forms required. Most (93%) of the 124 VSAS participating programs require an immunization form, with over half (n = 68, 59%) of those programs accepting the standardized AAMC immunization form. The remaining programs (n = 47, 41%) utilize their own immunization form that must be completed, verified, and signed by a licensed health provider. In addition to baseline immunization requirements and proof of antibody titers, several programs require additional blood tests, such as drug screening (n = 10, 7%) and copies of the original lab reports. A standard AAMC immunization form accepted uniformly by all programs, would simplify the application process and dramatically reduce the anxiety experienced by students who frequently choose their away rotations based on immunization requirements and the number of individual forms that need to be completed.

Supplemental Requirements

In addition to the baseline VSAS requirements, participating programs typically request a variety of supplemental documentation – HIPAA certification, passing USMLE Step 1, and mask fitting – which may or may not be listed on VSAS and can be found specifically on the program’s visiting student webpage. Expanding the VSAS checklist would create a more comprehensive and uniform set of requirements for away rotations that could be accessed by medical students from a centralized location within the VSAS application portal. Additionally, while many of these supplemental documents currently have to be completed by the student and uploaded to VSAS, much of this information is already provided by the student’s medical school by means of the verification checklist (Table 2). Non-VSAS programs, however, do not receive this information from the medical schools directly and hence all of the burden falls on the medical student himself/herself. With expansion of the checklist and complete participation in VSAS, the total number of requirements may increase, however, standardization of the application process and ease of collecting the information would greatly benefit the applicants. Additionally, supplemental documents required by less than 10% of programs (e.g. personal statement and letters of recommendation) could likely be eliminated from the application process, as they do not seem to confer much benefit.

Application Timeline

Each orthopaedic residency program releases their elective catalogue on their own schedule, with the first catalogue announced yearly on January 31st and the latest being May 15th and generally begin accepting applications two to four weeks later. This variability complicates the application process for students as many programs extend offers on a first-come first-serve basis. Students are frequently forced to choose between securing rotations early or waiting for the later program applications to be released, which creates a risk of not being able to fill an away rotation block. The application process would benefit from a more uniform timeline, which would limit the confusion posed to applicants and ease the anxiety associated with securing multiple away rotations prior to the residency interview season.

Limitations

This study was inherently limited by its observational nature and the fact that program catalogues are continually updated throughout the application cycle, making it difficult to identify the most accurate and current information for each program. In addition, there were instances of missing or inconsistent application requirements between VSAS and program websites that highlight the difficulty for applicants to submit appropriate application
materials. Several programs listed information in a variety of places including VSAS, visiting student websites, and course catalogues. In many instances, the supplemental information was found on multiple forms and, on occasion, we noted conflicting information between different sources; however, every effort was made to maintain a list of the most accurate information for each program.

Conclusion

With the introduction of VSAS, medical students have been granted access to a vast collaborative catalogue of potential away rotations. While many ACGME accredited orthopaedic surgery residency programs utilize the centralized VSAS to accept applications for visiting medical students, there is considerable variability among the documents required to successfully enroll in an elective clerkship. Based on our thorough analysis of this process, we recommend implementing the changes suggested above including encouraging total participation in VSAS, expanding and standardizing requirements, and eliminating extraneous and repetitive supporting documents. This will help create a more efficient, streamlined process of applying for away rotations in orthopaedic surgery.

Table 1

|                      | All Clerkship | VSAS (n = 124) | Non-VSAS (n = 20) | Chi-Squared |
|----------------------|---------------|----------------|-------------------|-------------|
|                      | Total (n)     | Total (n)      | Total (n)         | p-value     |
| VSAS Participation   | 124 85%      | 124 100%       | 0 0%              | <0.001      |
| Photo                | 117 85%      | 118 95%        | 9 35%             | <0.001      |
| Curriculum Vitae     | 117 78%      | 107 86%        | 10 38%            | <0.001      |
| Transcript           | 125 83%      | 115 93%        | 10 38%            | <0.001      |
| Immunization Forms   | 116 91%      | 115 93%        | 21 81%            | 0.009       |
| Standardized Form (AAMC) | 74 49%   | 68 59%         | 6 23%             | 0.063       |
| HIPAA Certificate    | 34 23%       | 24 19%         | 10 38%            | 0.025       |
| Personal Statement   | 15 19%       | 10 8%          | 5 19%             | 0.084       |
| Letter of Recommendation (y/n) | 11 7%    | 8 6%           | 3 12%             | 0.366       |
| 1 Letter             | 9 6%         | 7 6%           | 2 8%              | 0.689       |
| 2 Letters            | 2 1%         | 2 2%           | 0 0%              | 0.514       |
| USMLE Step 1 - Passing Score | 100 67% | 84 68%        | 16 62%            | 0.542       |
| USMLE Step 1 - Score Report | 15 10%  | 7 6%           | 8 31%             | <0.001      |
| Mask fit             | 25 17%       | 23 19%         | 2 8%              | 0.177       |
| OSHA                 | 15 10%       | 12 10%         | 3 12%             | 0.774       |
| BLS                  | 39 26%       | 35 28%         | 4 15%             | 0.175       |
| ACLS (Status)        | 19 13%       | 18 15%         | 1 4%              | 0.137       |
| Additional Forms     | 57 38%       | 43 35%         | 14 54%            | 0.067       |
| Drug Screen          | 10 7%        | 10 8%          | 0 0%              | 0.154       |
| Confidentiality      | 6 4%         | 6 5%           | 0 0%              | 0.252       |
| Ortho Specific Application | 14 9%  | 2 2%           | 12 46%            | <0.001      |
| Letter of Good Standing | 10 7% | 4 5%           | 6 23%             | <0.001      |

Table 1: Application requirements for away rotations in orthopaedic surgery at non-military ACGME programs.
Table 2: Automated application checklist generated during the VSAS application process. Each line item is verified by the clinical education department at the applicant's medical school.

Take Home Messages

Authors’ Recommendations

Based on the complexities of the application process identified in our study we propose the following changes:

1. All orthopaedic surgery residency programs utilize the VSAS portal to provide a list of application requirements and to accept application materials for fourth-year visiting medical students, including the standardized AAMC immunization form.

2. VSAS expand the baseline requirements to include common supplemental materials (e.g. USMLE Step 1 scores and the HIPPA certification), which will help create a more standardized application process. This would then allow students to upload all required forms directly to their VSAS application where it can be verified by their home school and sent directly to the programs of their choice.

3. Omit supplemental application components that are required by less than 20% of programs (e.g. Letter of Good Standing and OSHA/mask fit trainings).

4. A more standard date for release of the program catalogs on VSAS.

5. That program catalogs contain accurate application submission dates and requirements.

Implementing these changes may help streamline the process of applying for orthopaedic surgery away rotations,
thereby benefiting both the applicant and the orthopaedic surgery residency programs.

Notes On Contributors

Jeffrey D. Tompson, MD is a resident in the Department of Orthopaedic Surgery at Rutgers University New Jersey School of Medicine.

Rabia Qureshi, BS is a medical student at Drexel University College of Medicine.

Mary K. Mulcahey, MD is an Associate Professor and the Director of the Women's Sports Medicine Program in the Department of Orthopaedic Surgery at Tulane University.

Acknowledgements

This study received no funding for any portion of its completion.

Bibliography/References

1. The Match National Residency Matching program: Results and Data: 2015 main residency match. http://www.nrmp.org/wp-content/uploads/2015/05/Main-Match-Results-and-Data-2015_final.pdf. Accessed March 3, 2016.

2. Bernstein AD, Jazrawi LM, Elbeshbeshy B, Della Valle CJ, Zuckerman JD. Orthopaedic resident-selection criteria. J Bone Joint Surg Am. 2002;84-A(11):2090-2096.

3. Karnes JM, Mayerson JL, Scharschmidt TJ. Is orthopedics more competitive today than when my attending matched? An analysis of National Resident Matching Program data for orthopedic PGY1 applicants from 1984 to 2011. J Surg Educ. 2014;71(4):530-542.

https://doi.org/10.1016/j.jsurg.2014.01.003

4. Abzug JM, Chafetz R, Johanson NA, Bosacco S, Kleinbart F. Factors medical students use to select orthopedic surgery residency positions. Am J Orthop (Belle Mead, NJ). 2013;42(1):30-31.

5. Bajaj G, Carmichael KD. What attributes are necessary to be selected for an orthopaedic surgery residency position: perceptions of faculty and residents. South Med J. 2004;97(12):1179-1185.

https://doi.org/10.1097/01.SMJ.0000136233.60966.F2

6. Evarts CM. Resident selection: a key to the future of orthopaedics. Clin Orthop Relat Res. 2006;449:39-43.

7. Huntington WP, Haines N, Patt JC. What factors influence applicants' rankings of orthopaedic surgery residency programs in the National Resident Matching Program? Clin Orthop Relat Res. 2014;472(9):2859-2866.

https://doi.org/10.1007/s11999-014-3692-9
8. Baldwin K, Weidner Z, Ahn J, Mehta S. Are away rotations critical for a successful match in orthopaedic surgery? Clin Orthop Relat Res. 2009;467(12):3340-3345.

https://doi.org/10.1007/s11999-009-0920-9

9. Mehta K, Sinno S, Saadeh PB, Thanik V, Patel A. Swings and Roundabouts: Paradoxes of the Away Rotation. Plast Reconstr Surg. 2015;136(2):293e.

https://doi.org/10.1097/PRS.0000000000001461

10. Drolet BC, Brower JP, Lifchez SD, Janis JE, Liu PY. Away Rotations and Matching in Integrated Plastic Surgery Residency: Applicant and Program Director Perspectives. Plast Reconstr Surg. 2016;137(4):1337-1343.

https://doi.org/10.1097/PRS.0000000000002029

11. Visiting Student Application Service. 2016; https://services.aamc.org/20/vsas/. Accessed March 3, 2016.

12. American Medical Association. Program Selection Criteria. 2016. https://www.ama-assn.org/search/ama-assn/program%20section%20criteria. Accessed March 3, 2016.

Appendices

None.

Declaration of Interest

The author has declared that there are no conflicts of interest.