Decline in Fellowship Interest/Applicants:

Time to Worry?

Jason T. Lee
Erica Mitchell
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NO DISCLOSURES
Choice of vascular surgery as a specialty: Survey of vascular surgery residents, general surgery chief residents, and medical students at hospitals with vascular surgery training programs

Keith D. Calligaro, MD,* Matthew J. Dougherty, MD,* Anton N. Sidawy, MD, and Jack L. Cronenwett, MD,† Philadelphia, Pa; Washington,

Purpose: Under the direction of the Association of Program Directors in Vascular Surgery (APDS) and the perception of program directors that the quality of candidates is deteriorating, the Issues Committee of the Association of Program Directors in Vascular Surgery (APDS) explored the characteristics and the trend of the applicant pool to develop recommendations for improvement.

Methods: The Electronic Residency Application Service (ERAS) database was queried for the total number of applicants, medical school, gender, and age, among other characteristics. The vascular surgery applicant pool was compared to the applicant pool for general surgery; the applicant pool for all fellowship positions, including a variety of medical subspecialties; the applicant pool for all residency positions; and the applicant pool for colorectal surgery, the only other surgical subspecialty participating in ERAS in 2004. NRMP data was used prior to 2004. The \( \chi^2 \) test was used for statistical analysis, with significance set at \( P < .05 \).

Results: In the 2004 match for June 2005 positions, there were 100 applicants for 110 first-year vascular surgery positions in 90 programs. In 1989, there were 123 applicants for 56 positions in 49 programs. In 1989, 55% of vascular surgery applicants did not match; whereas in 2004, only 7% were unmatched. Although the overall number of vascular surgery applicants has remained relatively stable, the number of United States applicants has decreased from 89% in 1990 to 68% in 2004 (\( P < .01 \)). There was a significant geographic variation: 34% of those in the applicant pool came from the state of New York, but 23 states did not contribute a single applicant to the pool. In addition, vascular surgery, like other fellowships, attracts fewer female applicants.

Conclusions: The data from the ERAS database support the impression held by many in the vascular surgery education community that the size of the applicant pool for vascular surgery fellowship positions has remained stagnant, while the number of positions has significantly increased. Strategies to increase the size and quality of the applicant pool are needed. (J Vasc Surg 2005;42:S19-23.)
Choice of vascular surgery as a specialty: Survey of med students...

86% of med students preferred early specialization tracks.
Choice of vascular surgery as a specialty: Survey of vascular surgery residents, general surgery chief residents, and medical students at hospitals with vascular surgery training programs

Keith D. Calligaro, MD, a Matthew J. Dougherty, MD, a Anton N. Sidawy, MD, b and Jack L. Cronenwett, MD, c Philadelphia, Pa; Washington, D.C.

Purpose: To determine the factors that influence the choice of vascular surgery as a specialty and to assess the attractiveness of vascular surgery training programs.

Methods: Questionnaires were sent to vascular surgery program directors, chief residents in general surgery, and medical students. The survey included questions about the attractiveness of vascular surgery as a specialty, the importance of clinical exposure, and the influence of personal factors such as family history of vascular disease.

Results: A total of 197 vascular surgery programs, 169 general surgery programs, and 78 medical schools responded to the survey. Over 80% of respondents found vascular surgery residency programs to be attractive, with clinical exposure being the most important factor. However, only 38% of general surgery residents and 23% of medical students expressed interest in vascular surgery as a specialty.

Conclusions: The attractiveness of vascular surgery training programs varies widely among vascular surgeons, general surgery residents, and medical students. To increase the size and quality of the applicant pool, strategies must be developed to improve the attractiveness of vascular surgery as a specialty.
0+5 revolution

Number of Integrated Vascular Surgery Residency Programs and Positions by Year of ERAS Application

- Number of Vascular Programs
- Number of Vascular Positions
A Comparison of Training Experience, Training Satisfaction, and Job Search Experiences between Integrated Vascular Surgery Residency and Traditional Vascular Surgery Fellowship Graduates

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Background: The first 2 integrated vascular residents in the United States graduated in 2012, and in 2013, 11 more entered the job market. The purpose of this study was to compare the job search experiences of the first cohort of integrated 0 + 5 graduates to their counterparts completing traditional 5 + 2 fellowship programs.

Methods: An anonymous, Web-based, 15-question survey was sent to all 11 graduating integrated vascular residents in 2013 and to the 25 corresponding 5 + 2 graduating fellows within the same institution. Questions focused on the following domains: training experience, job search timelines and outcomes, and overall satisfaction with each training paradigm.

Results: Survey response was nearly 81% for the 0 + 5 graduates and 64% for the 5 + 2 graduates. Overall, there was no significant difference between residents and fellows in the operative experience obtained as measured by the number of open and endovascular cases logged. Dedicated research time during the entire training period was similar between residents and fellows. Nearly all graduates were extremely satisfied with their training and had positive experiences during their job searches with respect to starting salaries, numbers of offers, and desired practice type. Most 0 + 5 graduates chose academic and mixed practices over private practices compared with 5 + 2 fellowship graduates.

Conclusions: Although longer term data are needed to understand the impact of the addition of 0 + 5 graduating residents to the vascular surgery work force, preliminary survey results suggest that both training paradigms (0 + 5 and 5 + 2) provide positive training experiences that result in excellent job search experiences. Based on the current and future need for vascular surgeons in the work force, the continued growth and expansion of integrated 0 + 5 vascular surgery residency positions as an alternative to traditional fellowship training is thus far justified.

Increasing the number of integrated vascular surgery residency positions is important to address the impending shortage of vascular surgeons in the United States


ABSTRACT

Objective: The demand for vascular surgeons is expected to far exceed the current supply. In an attempt to decrease the training duration and to address the impending shortage, integrated vascular surgery residencies were approved and have expanded nationally. Meanwhile, vascular fellowships have continued to matriculate approximately 120 trainees annually. We sought to evaluate the supply and demand for integrated vascular residency positions as well as changes in the quality of applicants.

Methods: We conducted a retrospective review of national data compiled by the Association of American Medical Colleges and the National Resident Matching Program regarding integrated vascular surgery residency programs (2008-2015) and fellowships (2007-2016). Variables reviewed included the total number of applicants, sex, U.S. vs international medical school enrollment, applications per program, and applicants per position. In addition, we conducted a retrospective review of applicants to the University of Massachusetts Medical School integrated vascular surgery residency program from 2008 to 2015 to examine those variables and United States Medical Licensing Examination Step 1 and Step 2 CK scores over time.

Results: The number of vascular surgery integrated residency positions increased from 4 in 2008 to 56 in 2015. Concurrently, the number of integrated residency applicants grew from 112 in 2008 to 434 in 2015. This increase has been predominantly driven by a 57% increase in U.S. graduate applicants and a 170% increase in women applicants. The percentage of international medical graduates has decreased by 7% during the study period. The total number of applicants per residency position increased from 5-9 to 7-8. Meanwhile, the number of vascular surgery fellowship positions remained stable with an applicant to position ratio near 1:1. At the University of Massachusetts Medical School, the mean United States Medical Licensing Examination Step 1 (226 to 235) and Step 2 CK (237 to 243) scores among integrated residency applicants have improved annually and typically exceed the national average among U.S. applicants who have matched in their preferred specialty.

Conclusions: Since the approval of a primary certificate in vascular surgery and the subsequent rollout of integrated vascular surgery programs, the number of residency programs and the quality of residency applicants have continued to increase. Demand from medical school applicants vastly outweighs the current supply of training positions by eightfold. In contrast, demand from fellowship applicants matches the supply of fellowship positions. The matriculation of additional trainees must be met with continued expansion of the integrated vascular surgery residency pathway to manage future public health needs. [J Vasc Surg 2016;64:1-8]
Fig 2. Supply and demand for integrated vascular surgery residencies (2008-2015).
What has happened to the Fellowship?

Chart Title

unmatched programs • unmatched spots
Who is Applying to the Fellowship?

Chart Title

- Positions offered
- No. of US applicants
Percentage of US grads applying
Percentage of US grads matched?
Is this a problem and what are solutions?

• Continue to track and trend
  • Accept that 40% of the new workforce out of fellowship are non US grads

• Try to optimize supply and demand of integrated programs
  • Encourage new integrated residencies to form
  • Consider “conversion” of fellowship
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    • ACGME/RRC applications
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- Increase branding of VS during general surgery rotations
  - Decreasing amount of time during GS residency
Conclusions

• Average of 8.2% non match rate (range 2% to 19%) in fellowship from 2008-2018

• Continued increased interest in applications for integrated programs (non match rate 0-2 positions annually past 10 years)

• The success of the integrated program has potential implications into fellowship applicant numbers
  • Applicants initially interested in vascular
  • Amount of vascular exposure to GS residents

• Trend of decreasing fellowship applicants could get worse
  • APDVS should have strategy to help future programs