Vascular Training Paradigms: Integrated vs. Independent?

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Program Director Vascular Surgery

Vascular Annual Meeting
San Francisco
May 2013
Vascular Training Programs

- **0+5 track**—Eligible for board certification in vascular surgery only.
- **4+2 Early Specialization Program (ESP) track**—Eligible for vascular surgery and general surgery certification
- **3+3 track**—Eligible for board certification in vascular surgery only.
- **5+2 track**—Eligible for board certification in both general surgery and vascular surgery.
Traditional Vascular Training

Vascular Surgery Fellowship
- Complete 5 years general surgery
- May include 1-2 years additional research
- Expected to have done 12 months during general surgery training
- 2 years clinical training in vascular surgery
- Board Certification in General and Vascular Surgery
Fellow Case Volumes

Total Primary + Secondary Procedures

<table>
<thead>
<tr>
<th>Year</th>
<th>USF</th>
<th>National 50th %</th>
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<td>2005</td>
<td>1729</td>
<td>866</td>
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<tr>
<td>2006</td>
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<td>2011</td>
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General Surgery Training

- Curriculum not standardized
  - Laparoscopy
  - Upper GI surgery
  - Colorectal Surgery
  - Breast
  - Bariatrics
  - Cardiac & Thoracic Surgery
  - Vascular Surgery
  - Trauma and Critical Care

- Eligible for General Surgery Board Certification
Reality of General Surgery Training

- There aren’t any more general surgeons.
- 70 - 80% of graduates seeking advanced fellowship.
- Unrealistic expectation
  - Too many areas of specialty
  - Too many advanced fellowships
  - Too many new tools
- Goal of current training is core principles “Surgery in General”.
- Plastic Surgery successful transition to integrated training.
Vascular Surgery is Changing

The Transformation of Vascular Surgery

1993

UNIVERSITY OF SOUTH FLORIDA
State of the Art Endovascular Interventions

The Transformation of Vascular Surgery

2005
Bypass Procedures – Gold Standard

The Transformation of Vascular Surgery

1994
Now Endovascular First Line

The Transformation of Vascular Surgery

2007
Why Develop an Integrated Program?

- Vascular fellows completing training do not practice general surgery
- Too much time spent on procedures vascular surgeons will never do
  - Laparoscopy
  - Endoscopy
- Eliminate need for a second application and match (time & $)
- More attractive sub-specialty residency
  - 40% of integrated residents are women (60% in our program)
  - Higher percentage AOA
- Will get better applicants – thus better residents
  - Higher USMLE
  - More publications
- Better way to train a vascular surgeon
  - Focused skill set
- Permit earlier, mastery of endovascular skills
- Increase number of vascular surgeons entering practice
- ONLY Vascular Board Certified
Critical Components

- Adequate case volume and distribution
- Multiple Sites/Services
- Faculty
  - Education
  - Research
  - Endovascular training
  - Simulation
- Control over Core Curriculum
- $$ Support
Potential Obstacles

- Dept. Chair
- GME Funding
- General Surgery Program Director
- General Surgery Residents
- Vascular Fellow’s
Integrated Residency Requirements

- 24 months General Surgery (core)
  - Recommended to take general surgery in-service exam
  - Required to pass SPE exam for eligibility for vascular boards

- 36 months Vascular & Endovascular Surgery
  - Rotations are not standardized***
  - Must include vascular lab interpretation
  - Final year all vascular
  - Annual Vsite exam (changing to SPE site)
  - Required RPVI

- Many programs have 1-2 year research requirement
- Required to take SPE exam (4th year) and Vascular Written and Oral Exam
Infrastructure of the Integrated Residency

- Provide a CORE of surgical principles
- Detailed knowledge of Vascular Imaging
  - Angio
  - CT
  - MR
- Vascular Lab
- Vascular Medicine
- Endovascular Skills
- Traditional Vascular Surgery
# Integrated Residency Rotation Schedule

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<th>PGY1</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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| PGY2          |       |       |       |       |       |       |       |       |       |       |       |       |
| Transplant Surgery |   |       |       |       |       |       |       |       |       |       |       |       |
| Vasc Surgery  |       |       |       |       |       |       |       |       |       |       |       |       |
| Cardiac Surgery |     |       |       |       |       |       |       |       |       |       |       |       |
| Trauma ICU    |       |       |       |       |       |       |       |       |       |       |       |       |
| General Surgery |     |       |       |       |       |       |       |       |       |       |       |       |
| Trauma        |       |       |       |       |       |       |       |       |       |       |       |       |
| Vasc Surgery  |       |       |       |       |       |       |       |       |       |       |       |       |

| PGY3          |       |       |       |       |       |       |       |       |       |       |       |       |
| Vasc Surgery  |       |       |       |       |       |       |       |       |       |       |       |       |
| Trauma        |       |       |       |       |       |       |       |       |       |       |       |       |
| Cardiac Surgery |     |       |       |       |       |       |       |       |       |       |       |       |
| General Surgery |     |       |       |       |       |       |       |       |       |       |       |       |
| Vasc Surgery  |       |       |       |       |       |       |       |       |       |       |       |       |
| Endovascular/ Vascular Lab | |       |       |       |       |       |       |       |       |       |       |       |
| Peds Surgery  |       |       |       |       |       |       |       |       |       |       |       |       |

| PGY4          |       |       |       |       |       |       |       |       |       |       |       |       |
| Vasc Surgery FH |     |       |       |       |       |       |       |       |       |       |       |       |
| Vasc Surgery FH |     |       |       |       |       |       |       |       |       |       |       |       |
| Vascular Surgery TGH |       |       |       |       |       |       |       |       |       |       |       |       |
| Vascular Surgery VA | |       |       |       |       |       |       |       |       |       |       |       |

| PGY5          |       |       |       |       |       |       |       |       |       |       |       |       |
| Vasc Surgery FH |     |       |       |       |       |       |       |       |       |       |       |       |
| Vasc Surgery FH |     |       |       |       |       |       |       |       |       |       |       |       |
| Vascular Surgery TGH |       |       |       |       |       |       |       |       |       |       |       |       |
| Vascular Surgery VA | |       |       |       |       |       |       |       |       |       |       |       |
Integrated Training Programs

39 Programs participated
46 Positions offered in 2013 Match

Integrated Programs in Vascular Surgery March 2013
40 programs 47 positions
5 new programs approved in February 2013
Vascular Surgery in Florida

- Insufficient number of surgeons for population
  - estimated 18 million in 2010
  - no vascular surgeon in many counties
  - ABS-VS certified surgeons perform 1/3rd of procedures
- Number of medical school graduates increasing
  - 450 “new” MD’s and DO’s each year
- Only three 2-yr training programs available in Florida
- 1 “integrated” vascular surgery training program
New Integrated Vascular Positions

- Feb RRC Approved
  - Beth Isreal Deaconess
  - MGH
  - Univ Iowa
  - Albany Medical Center
  - Charleston Area Medical Center

- Total 45 Programs and 52 Positions
Integrated Vascular Positions
2013 Integrated Vascular Match

- Approximately 200 Applicants
- 84 Applicants interviewed (49 US Seniors)
- 45 Matched (37 US Seniors)
## Amongst Most Competitive Match

<table>
<thead>
<tr>
<th>Program</th>
<th>Positions</th>
<th>Unfilled</th>
<th>Total Appl</th>
<th># US Appl</th>
<th>% US citizens</th>
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<td>Anesthesiology</td>
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<td>19</td>
<td>1893</td>
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<td>Internal Medicine</td>
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<td>Neurosurgery</td>
<td>204</td>
<td>1</td>
<td>314</td>
<td>241</td>
<td>93.1%</td>
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<td>Orthopedic Surg</td>
<td>693</td>
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<td>1038</td>
<td>833</td>
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<td>Radiology - Diagnostic</td>
<td>164</td>
<td>9</td>
<td>820</td>
<td>595</td>
<td>61.6%</td>
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<tr>
<td>General Surgery</td>
<td>1185</td>
<td>3</td>
<td>2415</td>
<td>1295</td>
<td>80.5%</td>
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<tr>
<td>Thoracic Surgery</td>
<td>26</td>
<td>0</td>
<td>79</td>
<td>52</td>
<td>85.6%</td>
</tr>
<tr>
<td>Vascular Surgery</td>
<td>46</td>
<td>1</td>
<td>84</td>
<td>49</td>
<td>80.4%</td>
</tr>
</tbody>
</table>
Independent Residency

- 104 Independent Programs (Fellowships)
- 2 New Programs
  - Michigan State University College of Human Medicine
  - University of Oklahoma School of Community Medicine (Tulsa)
Trends in Fellowship Match

Positions

- 2008: 119, 4
- 2009: 116, 14
- 2010: 121, 19
- 2011: 113, 10
- 2012: 120, 7

Applicants

- 2008: 139, 24
- 2009: 113, 11
- 2010: 112, 10
- 2011: 113, 10
- 2012: 131, 18

Legend:
- Blue: Positions Offered
- Green: Positions Filled
- Red: Positions Unfilled
- Blue: Number of Applicants
- Green: Number Matched
- Red: Number Unmatched
USF Integrated Vascular Residency

- 0+5 format, approved February 2007 (1 year approval)
- 6 months general surgery each of first 4 years
  - Transitioned to 4 months PGY 1-3 and final 2 years
- No extra research year initially, now with 2nd position will offer 1 year research tract
- 2 senior year’s all in vascular surgery (to rotate with 5+2 fellows)
- Seamless integration with general surgery residency
- Maintained traditional fellowship (5+2) track
- 2008 - 5 year ACGME approval for both programs
USF Integrated Applicant Pool

- 2007 (ACGME approval)
  - 3 applicants (1 internal)
- 2008 NRMP match
  - 89 applicants
  - 5 (5%) interviewed (internal candidate matched)
- 2009
  - 104 applicants (18% increase)
  - 14 (13%) interviewed (0 internal)
- 2010
  - 106 applicants (stable)
  - 28 (26%) interviewed (0 Internal)
- 2011
  - 112 Applicants
  - 15 Interviewed (1 Internal)
- 2012
  - 104 applicants
  - 13 interviewed
  - 1 internal (Mich)
- 2013
  - 90 applicants
  - 16 interviewed
  - Matched 2 (1 internal)
Integrated Vascular Residents

- 1st graduates last year
  - Stony Brook - stayed as faculty
  - USF – Complex Aortic Fellowship at Cleveland Clinic and staying on as faculty
Integrated Vascular Residency

- Allows early identification of specialty identity
- Integration with vascular fellows advantageous to both groups
- Shared call necessary with 80 hr/week schedule
- 2 senior years equivalent to fellowship with respect to chief responsibilities
- Independent Residency still a good alternative