ACGME International

Advanced Specialty Program Requirements for Graduate Medical Education in Vascular Surgery Integrated (Residency) or Independent (Fellowship)

Initial Approval:

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Int. Introduction

Background and Intent: Programs must achieve and maintain Foundational Accreditation according to the ACGME-I Foundational Requirements prior to receiving Advanced Specialty Accreditation. The Advanced Specialty Requirements noted below complement the ACGME-I Foundational Requirements. For each section, the Advanced Specialty Requirements should be considered together with the Foundational Requirements.

Int. I. Definition and Scope of the Specialty

Vascular surgeons provide comprehensive care to patients with conditions caused by occlusive, aneurysmal, inflammatory, traumatic (both iatrogenic and non-iatrogenic), compressive, and other etiologies of the arterial, venous, and lymphatic circulatory systems, exclusive of those circulatory vessels intrinsic to the heart and brain. Comprehensive care requires expertise in evaluation, diagnosis, operative (including open, endovascular, and hybrid approaches), and non-operative treatment of patients with acute and chronic vascular disease. Vascular surgeons demonstrate technical expertise and surgical judgement to provide care across a spectrum of health care settings, ranging from highly specialized to resource-limited environments.

Vascular surgeons are professionals. Professionalism includes high ethical standards, stress tolerance, and empathy. Vascular surgeons promote sustainable delivery of vascular care through resource stewardship and identify and mitigate the effects of health care disparities on patient outcomes. They recognize the importance of personal well-being and use skill sets that promote resilience, work-life integration, and career longevity.

Vascular surgeons are patient centered and provide humanistic, ethical, and value-directed care. They emphasize primary and secondary prevention of disability and death while providing education that prioritizes quality of life. Vascular surgeons diagnose and treat patients in a holistic and longitudinal manner, using the entire spectrum of available treatment options. Their judgement and expertise in the medical management of vascular disease, in addition to their interventional education and training, allow them to lead complex, shared decision-making and offer patients the most appropriate treatment options while focusing on the long-term implications of each choice.

Vascular surgeons are critical for multidisciplinary management of patients. They are leaders in the care of patients with wounds, venous disease, and chronic limb-threatening ischemia. Vascular surgeons focus on limb salvage and preservation of function, performing amputations when necessary. They work with other clinicians by providing vascular exposure, managing iatrogenic and traumatic vascular injury, and restoring blood flow to ischemic tissue. Vascular surgeons play a significant role in the provision and maintenance of vascular access and the care of critically ill patients. They are proficient in the acquisition and interpretation of vascular

laboratory and imaging studies.

Vascular surgeons are scholars. They contribute to and analyze the scientific literature, including translational science. They practice evidence-based care, interpret and report patient-centered outcomes, and utilize data management science for ongoing professional learning and continuous quality improvement. Vascular surgeons are creative and adaptive lifelong learners who design and assimilate new technologies and scientific advances. Vascular surgeons are committed educators. They communicate fluently and clearly explain complex data and concepts to all stakeholders, especially patients and their surrounding communities.

Int. II. Duration of Education

Int. II.A. The educational program in vascular surgery for integrated (residency) programs must be 60 or 72 months in length.

Int. II.B. The educational program in vascular surgery for independent (fellowship) programs must be 24 or 36 months in length.

I. Institution

I.A. Sponsoring Institution

See International Foundational Requirements, Section I.A.

I.B. Participating Sites

I.B.1. Geographically remote participating sites must provide audio visual access to conferences and lectures at the central location or document provision of an equivalent educational program of lectures and conferences.

I.B.2. Participating sites should be geographically proximate to the primary clinical site to allow all residents and fellows to attend conferences, basic science lectures, and morbidity and mortality reviews on a regular and documented basis at a central location.

II. Program Personnel and Resources

II.A. Program Director

II.A.1. The program director’s initial appointment should be for the length of the program plus one year.

II.B. Faculty

II.B.1. The members of the program’s faculty must reflect sufficient variety of interests and capabilities to represent the many facets of vascular surgery.

II.B.2. The majority of core faculty members must be vascular surgeons.

II.C. Other Program Personnel

105
106 See International Foundational Requirements, Section II.C.
107
108 **II.D. Resources**
109
110 II.D.1. The institutional volume and variety of open and endovascular operative
111 experience must be adequate to ensure a sufficient number and
112 distribution of complex cases (as determined by the Review Committee-
113 International) for each resident and/or fellow in the program.
114
115 II.D.2. Institutions must include facilities and staff members for a variety of other
116 services that provide a critical role in the care of patients with vascular
117 conditions, including cardiovascular services, critical care services, general
118 surgery services, nephrology services, neurology services, and radiology
119 services.
120
121 II.D.3. The Sponsoring Institution and program must jointly ensure the availability
122 of adequate resources for residents and/or fellows to have substantial
123 experience in interpreting results of:
124
125 II.D.3.a) abdominal and visceral vascular imaging;
126
127 II.D.3.b) extracranial cerebrovascular testing;
128
129 II.D.3.c) non-invasive vascular laboratory testing; and,
130
131 II.D.3.d) peripheral arterial and peripheral venous testing.
132
133 II.D.4. Technology must be available to support the education of residents and/or
134 fellows, including:
135
136 II.D.4.a) online radiographic and laboratory reporting systems at the primary
137 clinical site and all participating sites; and,
138
139 II.D.4.b) software resources for production of presentations, manuscripts,
140 and portfolios.
141
142 **III. Resident Appointment**
143
144 **III.A. Eligibility Criteria**
145
146 III.A.1. To be eligible for appointment to an integrated (residency) program,
147 residents must have successfully fulfilled eligibility requirements outlined in
148 the Foundational Requirements for residency programs.
149
150 III.A.2. To be eligible for appointment to an independent (fellowship) program,
151 fellows must have completed an ACGME-I-accredited program in surgery or
152 thoracic surgery, or a surgery or thoracic surgery program acceptable to the
153 Sponsoring Institution's Graduate Medical Education Committee.
154
155 III.A.2.a) Within the first six weeks of the program, fellows who have not
156 completed an ACGME-I-accredited residency program must have a

157 comprehensive assessment of their surgical skills with development
158 of an individualized learning plan as needed.
159
160 **III.B. Number of Residents**
161
162 See International Foundational Requirements, Section III.B.
163
164 **III.C. Resident Transfers**
165
166 See International Foundational Requirements, Section III.C.
167
168 **III.D. Appointment of Fellows and Other Learners**
169
170 See International Foundational Requirements, Section III.D.
171
172 **IV. Specialty-Specific Educational Program**
173
174 **IV.A. ACGME-I Competencies**
175
176 IV.A.1. The program must integrate the following ACGME-I Competencies into the
177 curriculum.
178
179 IV.A.1.a) Professionalism
180
181 IV.A.1.a).(1) Residents/fellows must demonstrate a commitment to
182 professionalism and an adherence to ethical principles.
183 Residents/fellows must demonstrate:
184
185 IV.A.1.a).(1).(a) compassion, integrity, and respect for others;
186
187 IV.A.1.a).(1).(b) responsiveness to patient needs that supersedes
188 self-interest;
189
190 IV.A.1.a).(1).(c) cultural awareness;
191
192 IV.A.1.a).(1).(d) respect for patient privacy and autonomy;
193
194 IV.A.1.a).(1).(d) accountability to patients, society, and the profession;
195
196 IV.A.1.a).(1).(e) respect and responsiveness to heterogeneous
197 patient populations, including but not limited to
198 gender, age, culture, race, religion, disabilities,
199 national origin, socioeconomic status, and sexual
200 orientation;
201
202 IV.A.1.a).(1).(f) ability to recognize and develop a plan for one's own
203 personal and professional well-being; and,
204
205 IV.A.1.a).(1).(g) appropriately disclosing and addressing conflict or
206 duality of interest.
207
208 IV.A.1.b) Patient Care and Procedural Skills

IV.A.1.b).(1) Residents/fellows must provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents/fellows must demonstrate competence in:

IV.A.1.b).(1).(a) synthesizing all relevant patient data to arrive at an organized, hierarchical differential diagnosis for complex common and rare disease processes, to include primary and secondary treatment options;

IV.A.1.b).(1).(b) providing care in a comprehensive and longitudinal manner; and,

IV.A.1.b).(1).(c) providing medical and procedural care in a logical, step-wise manner informed by available evidence-based guidelines.

IV.A.1.b).(2) Residents/fellows must be able to perform all medical diagnostic, and surgical procedures considered essential for the area of practice.

IV.A.1.b).(2).(a) Residents/fellows must demonstrate the ability to accurately interpret a range of non-invasive vascular laboratory studies.

IV.A.1.c) Medical Knowledge

IV.A.1.c).(1) Residents/fellows must demonstrate knowledge of established and evolving biomedical clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care, including:

IV.A.1.c).(1).(a) knowledge of anatomy, biology, embryology, microbiology, physiology, and pathology as they relate to the pathophysiology, diagnosis, and treatment of vascular lesions;

IV.A.1.c).(1).(b) knowledge and application of the scientific method to adapting and evaluating new and existing interventional and non-interventional strategies;

IV.A.1.c).(1).(c) knowledge of and the ability to convey safety and relative risk concepts to patients, patients' families, and the other members of the health care team regarding benefits and hazards of ionizing radiation, therapeutic, and diagnostic interventions, including pharmaceuticals and invasive and non-invasive procedures;

IV.A.1.c).(1).(d) knowledge of and the ability to critically appraise and apply evidence,

261 even when conflicting and incomplete, to guide care
262 tailored to the individual patient;
263
264 IV.A.1.c).(1).(e) knowledge of methods and techniques of angiography,
265 computed tomography (CT) scanning, magnetic
266 resonance imaging (MRI), magnetic resonance
267 angiography (MRA), and other vascular imaging
268 modalities; and,
269
270 IV.A.1.c).(1).(f) knowledge of the roles of different specialists and other
271 health care professionals in overall patient management.
272
273 IV.A.1.d) Practice-Based Learning and Improvement
274
275 IV.A.1.d).(1) Residents/fellows must demonstrate the ability to
276 investigate and evaluate their care of patients, to
277 appraise and assimilate scientific evidence, and to
278 continuously improve patient care based on constant
279 self-evaluation and lifelong learning. Residents/fellows
280 must demonstrate competence in:
281
282 IV.A.1.d).(1).(a) identifying and performing appropriate learning
283 activities;
284
285 IV.A.1.d).(1).(b) identifying strengths, deficiencies, and limits in
286 one's knowledge and expertise;
287
288 IV.A.1.d).(1).(c) incorporating formative evaluation feedback into daily
289 practice;
290
291 IV.A.1.d).(1).(d) locating, appraising, and assimilating evidence
292 from scientific studies related to their patients'
293 health problems;
294
295 IV.A.1.d).(1).(e) setting learning and improvement goals, and
296 regularly assessing their strengths, weaknesses,
297 and progress in achieving those learning goals;
298 and,
299
300 IV.A.1.d).(1).(f) systematically analyzing practice using quality
301 improvement methods and implementing
302 changes with the goal of practice improvement.
303
304 IV.A.1.e) Interpersonal and Communication Skills
305
306 IV.A.1.e).(1) Residents/fellows must demonstrate interpersonal and
307 communication skills that result in the effective exchange
308 of information and collaboration with patients, patients'
309 families, and health professionals. Residents/fellows
310 must demonstrate competence in:
311
312 IV.A.1.e).(1).(a) communicating effectively with patients and patients'

313 families, as appropriate, across a broad range of
314 socioeconomic circumstances, cultural backgrounds, and
315 language capabilities, learning to engage interpretive
316 services as required to provide appropriate care to each
317 patient;
318
319 IV.A.1.e).(1).(b) communicating effectively with physicians, other
320 health professionals, and health-related agencies;
321
322 IV.A.1.e).(1).(c) working effectively as a member or leader of a
323 health care team or other professional group;
324
325 IV.A.1.e).(1).(d) acting in a consultative role to other physicians
326 and health professionals;
327
328 IV.A.1.e).(1).(e) maintaining comprehensive, timely, and
329 legible medical records, if applicable;
330
331 IV.A.1.e).(1).(f) educating patients and patients' families,
332 students, other residents/fellows, and other
333 health professionals; and,
334
335 IV.A.1.e).(1).(g) communicating effectively with patients, patients'
336 families to partner with them to assess their care
337 goals, including, when appropriate, end-of-life goals.
338
339 IV.A.1.f) Systems-Based Practice
340
341 IV.A.1.f).(1) Residents/fellows must demonstrate an awareness of
342 and responsiveness to the larger context and system of
343 health care, as well as the ability to call effectively on
344 other resources in the system to provide optimal health
345 care. Residents/fellows must:
346
347 IV.A.1.f).(1).(a) work effectively in various health care delivery
348 settings and systems relevant to their clinical
349 specialty;
350
351 IV.A.1.f).(1).(b) coordinate patient care within the health care
352 system relevant to their clinical specialty;
353
354 IV.A.1.f).(1).(c) incorporate considerations of value, cost awareness,
355 delivery and payment and risk-benefit analysis in
356 patient and/or population- based care as
357 appropriate;
358
359 IV.A.1.f).(1).(d) advocate for quality patient care and optimal patient
360 care systems;
361
362 IV.A.1.f).(1).(e) demonstrate competence in understanding health
363 care finances and their impact on individual
364 patients' health decisions;

365
366 IV.A.1.f).(1).(f) participate in identifying system errors and
367 implementing potential systems solutions;
368
369 IV.A.1.f).(1).(g) demonstrate competence in using tools and
370 techniques that promote patient safety and disclosure
371 of patient safety events (real or simulated); ;
372
373 IV.A.1.f).(1).(h) advocate for patients within the health care system to
374 achieve the patients' and patient's family's care goals,
375 including, when appropriate, end-of-life goals.
376 .
377 **IV.B. Regularly Scheduled Educational Activities**

378 IV.B.1. Regular organized clinical teaching must occur.

379 IV.B.2. Conferences must include a review, held at least twice monthly, of all
380 current complications and deaths, including radiological and pathological
381 correlation of surgical specimens and autopsies when relevant.

382 IV.B.3. A course or a structured series of conferences must be included that
383 ensures coverage of the basic and clinical sciences fundamental to
384 vascular surgery, as well as the technological advances that relate to
385 vascular surgery and the care of patients with vascular diseases.

386 IV.B.4. Regular review of recent literature in a journal club format must occur.

387 IV.B.5. Residents/fellows must actively participate in the planning and
388 presentation of required conferences.

389 IV.B.5.e) Each resident/fellow must attend at least 75 percent of all required
390 conferences.

391 IV.B.5.f) At least 50 percent of the core faculty members, in aggregate, must
392 attend program conferences.
393
394 **IV.C. Clinical Experiences**
395
396 IV.C.1. Assignment of rotations must be structured to minimize the frequency of
397 rotational transitions, and rotations must be of sufficient length to provide a
398 quality educational experience, defined by continuity of patient care, ongoing
399 supervision, longitudinal relationships with faculty members, and meaningful
400 assessment and feedback.
401
402 IV.C.1.a) Resident/fellow clinical rotations must be a minimum of four weeks in
403 duration.
404
405 IV.C.2. The curriculum for each fellow in an independent (fellowship) program must
406 include 24 months of vascular surgery.
407
408 IV.C.3. The curriculum for each resident in an integrated (residency) program must
409 include at least:

410
411 IV.C.3.a) 12 months of foundational educational experience that best suits each program’s unique environment to be chosen from among the following: abdominal and alimentary tract surgery; anesthesia; burn surgery; cardiothoracic surgery; critical care; endocrine surgery; general surgery; head and neck surgery; neurological surgery; orthopaedic surgery; pediatric surgery; plastic surgery; surgical oncology; transplantation; trauma; and, urology.
418
419 IV.C.3.a) (1) The foundational experience must include pre- and post-operative evaluation and care; critical care and trauma management; and basic technical experience in skin and soft tissue, abdomen and alimentary track, airway management, and cardiothoracic surgery.
424
425 IV.C.3.b) 36 months of core educational experiences concentrated in vascular surgery (which could include experience in the vascular lab); and,
427
428 IV.C.3.c). 12 months of educational experiences that may be a combination of:
429
430 IV.C.3.c).(1) a maximum of six months of vascular surgery-related rotations, such as cardiovascular medicine (diagnostic and/or interventional), radiology (diagnostic and/or interventional), podiatry, physical medicine and rehabilitation, nephrology, and dedicated research;
435
436 IV.C.3.c).(2) a maximum of 12 additional months in foundational surgery rotations; and,
438
439 IV.C.3.c).(3) a maximum of 12 additional months of core vascular surgery rotations.
441
442 IV.C.4. All educational experiences must be documented.
443
444 IV.C.5. Resident/fellow operative and critical care experience must meet the minimums specified by the Review Committee-International.
446
447 IV.C.5.a) Excessive operative experience, as specified by the Review Committee-International, must be justified by the program director.
449
450 IV.C.6. The curriculum for each resident/fellow must include a final 12 months with chief resident responsibility on the vascular surgery service at the primary clinical site or at a participating site.
453
454 IV.C.6.a) Vascular surgery chief residents must not share primary responsibility for the same patient with another learner.
456
457 IV.C.7. Resident/fellow experiences must include primary responsibility for continuity of patient care, including ambulatory care, inpatient care, referral and consultation, and utilization of community resources.
460
461 IV.C.8. Resident/fellow experiences must include progressive senior surgical

462 responsibilities in the total care of vascular surgery patients, including pre-
463 operative evaluation, therapeutic decision-making, operative experience, and
464 post-operative management.
465
466 IV.C.9. Resident/fellow experiences must include participation in providing consultation
467 with faculty member supervision.
468
469 IV.C.9.a) Residents/fellows should have clearly defined educational
470 responsibilities for other residents, medical students, and professional
471 personnel.
472
473 IV.C.10. Resident/fellow experiences must include experience in the application,
474 assessment, and limitations of non-invasive vascular diagnostic techniques.
475
476 IV.C.10.a) The program must provide didactic and clinical education and training in
477 non-invasive vascular diagnostic testing and interpretation.
478
479 IV.C.10.b) Such education must include experiences integrating these skills into
480 diagnostic decision-making for patient care and must not be achieved
481 solely through attendance at off-site review or test preparation courses.
482
483 IV.C.11. Resident/fellow experiences must include experience with outpatient (non-
484 procedural) activities.
485
486 IV.C.11.a) Residents/fellows must devote an average of at least one half-day per
487 week to outpatient activities.
488
489 IV.C.12. Resident/fellow experiences must include procedural care delivered across a
490 spectrum of settings/sites of service, such as inpatient hospital or outpatient
491 office-based labs.
492
493 IV.C.13. Resident/fellow experiences must include evaluation and management of
494 vascular trauma, iatrogenic vascular injuries, and crisis management.
495
496 IV.C.14. Resident/fellow experiences must include instruction and/or experience in
497 advocacy, which can include, but is not limited to topics such as
498 reimbursement, payment policy, shared decision-making, and appropriate use.
499
500 IV.C.15. As residents/fellows progress through the educational program, they must be
501 provided with increasing responsibility based on performance on competency-
502 based evaluation tools so as to promote graduated autonomy in the operating
503 room and in the peri-operative care of patients.
504
505 IV.C.16. When justified by experience, senior resident/fellows should serve as teaching
506 assistants to more junior resident/fellows in vascular or general surgery.
507
508 **IV.D. Scholarly Activity**
509
510 IV.D.1. Residents/fellows must have instruction in critical thinking, design of
511 experiments, and evaluation of data.
512
513 IV.D.2. Residents/fellows should participate in clinical and/or laboratory research.

514
515 **V. Evaluation**
516
517 **V.A. Resident Evaluation**
518
519 V.A.1. The semi-annual assessment must include a review of each
520 resident's/fellow's operative experience to ensure breadth and balance of
521 experience in the surgical care of vascular diseases.
522
523 V.A.2. The program director must ensure that the operative experience of individual
524 residents/fellows in the same program is aligned to each individual's
525 progress toward competence.
526
527 **V.B. Clinical Competency Committee**
528
529 V.B.1. The program director or their designee, with input from the Clinical
530 Competency Committee, must assess resident/fellow acquisition and
531 maintenance of technical and non-technical skills using competency-based
532 evaluations that begin in the first year of the program.
533
534 V.B.1.a) The assessment should include formative resident/fellow feedback,
535 evidence of learning and development, and include directly observed
536 evidence for summative judgments.
537
538 **V.C. Faculty Evaluation**
539
540 See International Foundational Requirements, Section V.C.
541
542 **V.D. Program Evaluation and Improvement**
543
544 See International Foundational Requirements, Section V.D.
545
546 **V.E. Program Evaluation Committee**
547
548 See International Foundational Requirements, V.E.
549
550 **VI. The Learning and Working Environment**
551
552 **VI.A. Principles**
553
554 See International Foundational Requirements, VI.A.
555
556 **VI.B. Patient Safety**
557
558 See International Foundational Requirements, VI.B.
559
560 **VI.C. Quality Improvement**
561
562 See International Foundational Requirements, VI.C.
563
564 **VI.D. Supervision and Accountability**
565

VI.D.1. The program must define those physician tasks for which PGY-1 residents in the integrated (residency) program may be supervised indirectly, with direct supervision available, and must define “direct supervision” in the context of the program.

VI.D.2. The program must define those physician tasks for which PGY-1 residents in the integrated (residency) program must be supervised directly until they have demonstrated competence as defined by the program director, and must maintain records of such demonstrations of competence.

VI.D.3. As residents/fellows progress through levels of increasing competence and responsibility, work assignments must keep pace with their advancement.

VI.D.4. Lines of authority should be defined by programs, and all residents/fellows must have a working knowledge of these expected reporting relationships to maximize quality care and patient safety.

VI.E. Professionalism

VI.E.1. The workload associated with optimal clinical care of surgical patients must function as a continuum from the moment of admission to the point of discharge.

VI.E.2. Residents/fellows must collaborate with other surgical residents/fellows, with faculty members, other physicians outside of their specialty, and non-traditional health care practitioners, to best formulate treatment plans for an increasingly heterogeneous patient population.

VI.E.3. Residents/fellows must assume personal responsibility to complete all tasks to which they are assigned (or which they voluntarily assume) in a timely fashion.

VI.E.3.a) These tasks must be completed in the hours assigned, or, if that is not possible, residents/fellows must learn and utilize the established methods for handing off remaining tasks to another member of the resident/fellow team so that patient care is not compromised.

VI.E.4. Surgical teams should be made up of attending surgeons, fellows and residents at various PG levels (when appropriate), medical students (when appropriate), and other qualified health professionals.

VI.E.5. The work of the caregiver team should be assigned to team members based on each member’s level of education, experience, and competence.

VI.F. Well-Being

See International Foundational Requirements, VI.F.

VI.G. Fatigue

See International Foundational Requirements, VI.G.

VI.H. Transitions of Care

See International Foundational Requirements, VI.H.

VI.I. Clinical Experience and Education

See International Foundational Requirements, VI.I.

VI.J. On-Call Activities

VI.J.1. Night float rotations must not exceed two consecutive months, or three consecutive months for rotations with night shifts alternating with day shifts.

VI.J.2. There can be no more than four months of night float per year.

VI.J.3. There must be at least two months between each night float rotation.

VI.J.4. Night float must not exceed three months per year averaged over the duration of the educational program.