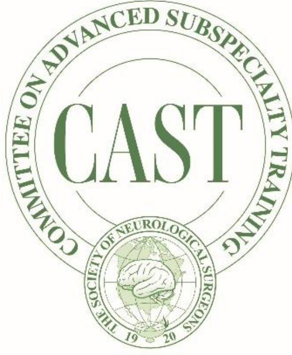

CAST PROGRAM REQUIREMENTS FOR FELLOWSHIP TRAINING IN **NEUROENDOVASCULAR SURGERY**

INTRODUCTION

<u>Eligibility</u>

Fellowship programs which exist within the structure of an ACGME accredited residency in neurological surgery, neurology, or radiology may apply for accreditation through the Neuroendovascular Surgery Advisory Committee (NESAC) and Committee on Accreditation of Subspecialty Training (CAST) of the Society of Neurological Surgeons (SNS).

<u>Definition</u>

Neuroendovascular Surgery (previously known as Central Nervous System Endovascular) is a subspecialty that uses minimally invasive catheter-based technology, radiological imaging, and clinical expertise to diagnose and treat vascular diseases of the central nervous system, as well as other disorders of the head, neck and spine and their vascular supply. The unique clinical and invasive nature of this subspecialty requires special training and skills.

DURATION AND SCOPE OF TRAINING

The educational program in Neuroendovascular Surgery may be enfolded and completed within the neurosurgical residency or accomplished after completion of formal prerequisite training. The program should include two (2) years of advanced medical education and training (one prerequisite year and one fellowship year) in Neuroendovascular (see section on fellowship training structure for details), to satisfactorily complete and validate catheter-based skills and competency, as well as all other pre-requisites for each individual specialty including Neurosurgery, Neurology, and Radiology. The first year of work may be spread across a period of time greater than one year during the course of residency or fellowship training. Training must include an ACGME-accredited neurosurgical residency (this pathway requires that the applicant have completed at least 10 open vascular cases during training), an ACGME-accredited neurology residency followed by a stroke or critical care fellowship, an ACGME-accredited radiology residency followed by a neuroradiology fellowship during which there has been at least 6 months of focused clinical service in a neurosurgery, vascular neurology or neurointensive care program, or an ACGME accredited Interventional Radiology/ Diagnostic Radiology residency with the Neurointerventional Radiology (NIR) pathway incorporated within or following the residency training (see section on fellowship training structure)

INSTITUTIONS

Sponsoring Programs

The sponsoring site must include at least one ACGME-accredited training program in either Neurology, Radiology, or Neurosurgery. Even when there are less than all three of these training programs in the institution, there must be a clear agreement by leadership of all three specialties provided in writing in the new fellowship application, and this will continue to be needed in each year's annual report. For any specialty without an ACGME-accredited training program in the institution, there must be a written plan describing the fellow's exposure to those aspects of the curriculum. Additionally, the Neuroendovascular Surgery Advisory Committee (NESAC) will evaluate the structure and curriculum at the time of the program's initial request for approval and through annual reports to ensure that the structural and educational criteria are consistently being met.

Setting

The Neuroendovascular training program must include educational activities in an environment that include open vascular neurosurgery, neurocritical care, stroke neurology, neuroradiology, and state-of-the-art neuroimaging and access to radiosurgery. The institution must have an endovascular unit and a Neurologic/Neurosurgical Intensive Care Unit or dedicated beds in a general ICU devoted to neurological and neurosurgical conditions for adult and pediatric patients.

Depending on local circumstances, training may be spent at additional institutions/sites which may provide special resources. Those sites must be within 50 miles of the primary site.

FOR CENTERS NOT HAVING ALL THREE RESIDENCY PROGRAMS, THE FOLLOWING ADDITIONAL INSTITUTIONAL REQUIREMENTS ARE AS FOLLOWS

- Comprehensive Stroke Center Designation:
    - The institution must be a designated Comprehensive Stroke Center. This ensures access to a broad spectrum of stroke-related cases and resources.
- Written Plan for Interdisciplinary Exposure:
    - Develop a detailed plan ensuring fellows receive sufficient exposure to neurosurgical, neurological, and radiological disciplines. This may include rotations or collaborations with nearby institutions that host the missing residency programs. This must include a description and calendar of multi-disciplinary conferences available to the trainee(s), where medical and surgical treatment options for cerebrovascular patients are discussed. *A block diagram detailing the off-service rotations and multi-disciplinary conferences should be submitted for the committee's review*.

- Supplemental requirements for programs without an accredited neurosurgical residency program are:

    - a detailed educational plan of how the fellow will be exposed to open vascular neurosurgery, including an understanding of those patients for whom an open surgical option is a reasonable option for treatment, and factors that play into this decision.
    - a list of neurosurgeons who perform open vascular cases at all training sites along with annual open vascular case numbers should be submitted
    - a case log of open cerebrovascular case number showing active neurosurgery being performed at your institution. Exact case numbers will need to be provided for the following procedures/surgeries:
        - Craniotomy for aneurysm
        - Vascular malformations (AVM, dAVF, Cav Mal)
        - Craniotomy or MIS (endoscopy) for ICH
        - STAMCA bypass or EDAS
        - CEA or TCAR

- Supplemental requirements for programs without an accredited neurology residency program are:

    - a detailed explanation of how the fellow will be exposed to Neurocritical care and vascular neurology, including appropriate medical therapy in the pre- and post-procedural time periods
    - a list of all Vascular Neurologists and Neurointensivists who routinely care for patients at the training sites

- Supplemental requirements for programs without an accredited radiology residency program are:

    - a detailed explanation of how the fellow will be exposed to Neuroradiology, particularly cross-sectional imaging for neurovascular disease
    - a list of the subspecialty Neuroradiologists at all training sites

PROGRAM PERSONNEL AND RESOURCES

<u>Fellowship Program Director and Fellowship Site Director</u>

A fellowship in Neuroendovascular must have a fellowship program director who:

- is certified by either the American Board of Neurological Surgery, American Board of Radiology, or the American Board of Psychiatry and Neurology
- holds a Recognition of Focused Practice Designation (RFPD) subspecialty credential administered by the American Board of Neurological Surgery (ABNS), a CNS Endovascular CAST certificate, or equivalent certification
    - CAST certificates in CNS Endovascular will **no longer be accepted** as a subspecialty credential by CAST or NESAC as of **July 1, 2027**
- has fulfilled any other respective requirements, including continuous certification (CC) to maintain primary board certification and subspecialty Neuroendovascular credential.

The fellowship program director:

- must have special expertise in Neuroendovascular, and his/her practice should be concentrated in this field.
- is responsible for establishing and maintaining the matrix curriculum, the selection and supervision of the trainees, and the selection of faculty.
- must evaluate the trainees on a regular basis with formal, written evaluations to ensure that matrix and key milestones and core competencies are met.
- must have adequate support from the institution and sponsoring department to carry out the mission of the program.
- must be (co)appointed with letter of support by the leaders of the three subspecialties.
- ensure faculty evaluations by both the fellowship director and the trainees are done regularly.

<u>Faculty</u>

The fellowship must include at least two (2) faculty members per accredited CAST fellow with special expertise in Neuroendovascular who are board certified/board eligible by the American Board of Neurological Surgery, or certified by the American Board of Radiology or American Board of Psychiatry and Neurology and possess other additional educational qualifications as determined by CAST and its NES Advisory Council (NESAC).

The faculty must:

- have documented qualifications to supervise patient care and instruct all fellows in the training program.
- devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities.
- demonstrate a strong interest in the education of fellows.
- support the goals and objectives of the educational program.
- provide didactic teaching and direct supervision of residents'/fellows' performance in-patient management and in the procedural, interpretive, and consultative aspects of Neuroendovascular surgery.

- stimulate scholarly activities and be able to direct residents/fellows in the conduct of such activities.
- hold appointments in an ACGME accredited neurosurgical, neurology or radiology residency-training program in good standing on the staff of the participating institution.

Non-physician faculty and other clinical personnel should:

- include all additional and necessary professional, technical, and clerical personnel to support the program.
- include specially trained nurses and technicians who are skilled in Neuroendovascular, radiological equipment, critical care instrumentation, respiratory function, and laboratory medicine.
- be appropriately qualified in their field(s).
- possess appropriate institutional appointment(s).

Fellowship Program Coordinator/Administrator

A Fellowship Program Coordinator (FPC) must be identified to support the administration and educational conduct of the fellowship. The FPC assists the program director in keeping fellow and institutional case logs, educational programming, evaluation documentation, and supports the program and fellow's(s) day-to-day activities. The FPC is a key member of the leadership team and is critical to the success and accreditation of the program.

It is understood that an FPC may support more than one CAST-accredited fellowship program. However, to have sufficient time dedicated to the administrative activities necessary to support the program and its participating fellows effectively, it is recommended FPC support should be aligned with effort detailed in the table below.

Number of approved fellow positions across all CAST fellowships within	Minimum FTE Recommendation
1 – 3 fellows	30%
4 – 7 fellows	40%
8 or more fellows	50%

Facilities and Resources

In order to evaluate and treat patients with cerebrovascular diseases:

- the imaging equipment and procedure rooms must be appropriately equipped and available for the performance of all Neuroendovascular procedures.
- physiologic monitoring and resuscitative equipment must be present in the procedure rooms.
- imaging equipment should include biplanar fluoroscopy with digital subtraction and roadmap capability and rotational 3-Dimensional imaging.
- the training program needs to be hospital-based to provide the adequate in- patient, outpatient, emergency, and neurointensive care necessary for the care of the Neuroendovascular patients.
- ancillary up-to-date imaging such as MRI and CT with perfusion analysis software and ultrasound must be available.
- NESAC will determine the adequacy of these facilities and resources at each training program.

FELLOW APPOINTMENTS, including trainee-to-faculty ratio

The appointment of fellows must not dilute or detract from the educational opportunities available to regularly appointed residents.

The total number of trainees (resident and/or fellows) in the program must be commensurate with the capacity of the program to offer an adequate educational experience in Neuroendovascular for each trainee. To ensure adequate teaching, supervision, research, trainee evaluation and academic progress, the trainee-to-faculty ratio must be at least two full-time Neuroendovascular faculty for one graduating fellow completing the fellowship each year.

The number of CAST-approved fellowship spots (complement) will thereafter be determined by CAST with NESAC counsel. Increased faculty numbers will be required to gain additional complement spots, and numbers will be adjudicated based on commensurate faculty clinical and academic experience and considering any dilution by fellows not tracking for CAST certification.

The fellowship complement is how many fellows can graduate in any academic year and does not include anyone in their prerequisite or first year of a two-year fellowship.
Satisfaction of these requirements are needed to provide the appropriate educational environment and training oversight will be determined by the NES Review Committee (NESAC) of CAST for each accredited fellowship.

PROGRAM CURRICULUM

Program Design

The object of providing these program requirements is to specify a curriculum of knowledge and clinical skills as well as a training environment and administrative resources for residents and Neuroendovascular fellows to develop advanced proficiency in the endovascular management of cerebrovascular disease; to develop the qualifications that facilitate supervision of Neuroendovascular services; and to educate trainees in state-of-the-art Neuroendovascular procedures.

Existence of required program design and sequencing of educational experiences and training environment are requisite for SNS CAST Programmatic accreditation and individual trainee certification.

The program must possess a written statement that outlines its educational goals and objectives relative to knowledge, skills, and other competencies. This statement must be distributed to fellows and faculty and must be reviewed with the trainees prior to their assignments.

Trainees completing Neuroendovascular fellowship training will be expected to:

- demonstrate mastery of all Neuroendovascular techniques and the pre- and post-procedural patient management.
- undertake investigations into the various areas of Neuroendovascular, such as new instrumentation, identification of important physiologic parameters, evaluation of pharmacologic agents in cerebrovascular patients, health outcomes and/or health policy issues related to Neuroendovascular.

Fellowship Training Structure

Neuroendovascular training for neurosurgeons, neurologists, and neuroradiologists can be divided into three separate stages:

Preliminary subspecialty training ***Neurosurgeons*** must include:

- satisfactory completion of a 7-year ACGME approved residency or be enfolded in the post Chief Residency year.
- satisfactory participation in all ABNS CC/MOC requirements.

Preliminary subspecialty training *Neurologists* must include:

- satisfactory completion of an ACGME-accredited neurology residency.
- satisfactory completion of an ACGME-accredited Vascular Neurology fellowship with at least 3 months in the neurointensive care unit or satisfactory completion of an ACGME, CAST, or UCNS approved Neurocritical Care fellowship.
- satisfactory participation in all ABNS CC/MOC requirements.

Preliminary subspecialty training *Radiologists* must include:

- satisfactory completion of an ACGME accredited residency in radiology and completion of Neuroradiology.
- satisfactory completion of at least 6 months of clinical service in a neurological surgery, vascular neurology or neurocritical care program prior to entering the final advanced year of NES fellowship.

OR

- satisfactory completion of the Neurointerventional Radiology (NIR) pathway within the IR/DR residency. minimum of the following 4-week rotations during internship and integrated IR residency: two blocks of Neuro ICU (NICU), two blocks of Neurosurgery (NS), one block of Vascular / Stroke Neurology (VSN), one additional elective block of either NICU, NS, NIR, or VSN, six blocks equivalent of diagnostic Neuroradiology (of which at least 5 blocks are formal diagnostic Neuroradiology rotations), and three blocks of Neurointerventional Radiology This pathway includes allows the candidate follow with a one year NES fellowship.

OR

- ABR certification in Interventional Radiology/Diagnostic Radiology (IR/DR) followed by independent completion of the clinical prerequisites for the Neurointerventional pathway: minimum of the following 4-week rotations: two blocks of Neuro ICU (NICU), two blocks of Neurosurgery (NS), one block of Vascular / Stroke Neurology (VSN), one additional elective block of either NICU, NS, NIR, or VSN, six blocks equivalent of diagnostic Neuroradiology (of which at least 5 blocks are formal diagnostic Neuroradiology rotations), and three blocks of Neurointerventional Radiology.

Each of these radiology pathways must include satisfactory participation in all ABR CC/MOC requirements and one of the following pathways:

<u>Year 1:</u> Preliminary year (can be completed across multiple years of residency or fellowship at an institution that is or is not CAST accredited) endovascular training in specialties of neurosurgeons, neurologists, and radiologists includes:

- performance of at least 200 catheter-based diagnostic and/or interventional cerebral angiographic procedures as primary operator completed during residency, preliminary subspecialty fellowship, or as a separate experience after completion of residency or during the CNS endovascular fellowship
  - proof of the completion of these cases will need to be submitted into the annual report when the fellow graduates.
- demonstrated competency in catheter techniques, as validated by the Neuroendovascular Fellowship Program Director, and
- expected knowledge of cerebrovascular diseases completed and approved by both the residency and fellowship program directors.

The preliminary training curriculum must include:

- proper use of needles, catheters, guidewires, and contrast material.
- fundamental understanding of radiation physics, biology, and safety.
- interpretation of cerebral angiography, neurovascular and neuroradiological studies
- pathophysiology of cerebrovascular diseases.
- coagulation pathways, testing and manipulation.
- evaluation and management of patients with cerebrovascular diseases.
- critical care management of the acute vascular patient, including placement of invasive monitoring devices.
- clinical indications, risks, and limitations of endovascular neurosurgical procedures.
- understanding alternatives to NES including medical and surgical options.
- generating procedural reports that include and adhere to CPT coding.

The trainee is expected to be well versed in the pathophysiology of cerebrovascular disease and understanding neuroradiological studies such as CT and MR. Additionally, such training can be further developed by focusing on neuroangiography, other neurovascular studies such as cervical and transcranial Dopplers, and physiological studies such as CT and MR Perfusion, SPECT and PET. The didactic components of radiation biology and safety must be delivered to the trainee to protect them and their patients from widespread and unnecessary exposure to radiation involving endovascular procedures.

Critical care training and management of the acutely ill or recently treated vascular patient is a fundamental tenet of Neuroendovascular training. This training includes ICU management of patients who: are ventilated, have elevated intracranial pressures which are being monitored, need or have in place central venous access or pulmonary artery catheters with issues of central venous volumes and their titration, have systemic infections and sepsis, experience acute cardiac dysthymias and failure, renal failure and other conditions routinely encountered in the care of Neuroendovascular patients in the ICU. Trainees should be routinely exposed to and well versed in the usage of the National Institutes of Health Stroke.

Score (NIHSS). The prerequisite rotation must also focus on the complexities of anticoagulation and their reversal algorithms in the management of endovascular patients, as well as the specific manipulations of central and cerebral hemodynamics in patients with ischemia and other specific management issues particular to the Neuroendovascular patients.

The practical endovascular training aspect for trainees can be significantly buttressed by incorporating simulation-based modules. Completing 20-50 simulated procedures before he/she encounters the first patient allows the incoming trainee to develop hand-eye coordination, a skill that is key for performing endovascular procedures. Flow-based simulators may also augment training programs, allowing the trainee to learn more than just catheter manipulation but also proper flush management, fluoroscopy time, optimization of viewing angles and reduction of radiation exposure to patients and self.

If the first year of fellowship training is done at a different institution from the one that the fellow will graduate, it will be the graduating institution's responsibility to provide proof of the first-year training cases. The graduating institution Fellowship Program Director will need to attest to those first-year training cases being completed and provide proof of completed cases when submitting the annual report when that fellow graduates.

Year 2: Advanced training (Must occur at CAST accredited Neuroendovascular program.)

A minimum of 12 to 24 months (of which the final 12 months need to be continuous) of a dedicated Neuroendovascular fellowship experience during which the fellow performs a broad spectrum of endovascular procedures as defined by core-competency requirements. The final 12 months of fellowship will be performed after completion of ACGME primary residency and subspecialty requirements for neurologists and radiologists. Neurosurgeons have the option of completing the final 12 months of training after completion of the Chief Resident year during ACGME residency or after completion of the residency.

Requisite knowledge and competency in the diagnosis and treatment of cerebrovascular diseases including extracranial and intracranial occlusive atherosclerotic disease and dissection in Neuroendovascular approved by the Neuroendovascular Fellowship Director.

The advanced training curriculum should include:

- arterial and venous angiographic anatomy of the brain, spinal cord, head, neck, and spine including collateral anastomoses, anatomic variants and modifications induced by disease processes.
- bony and soft tissue anatomy and physiology of brain, head and neck, and spine

- cerebral blood flow and its physiology and pharmacology.
- the technical aspects of endovascular neurosurgery including:
- arterial and venous access techniques
- catheter systems, nomenclature, and selection
- the spectrum of embolic and sclerosing agents
- the spectrum of stents, balloons, and other endovascular devices
- aneurysm treatment
- arteriovenous malformation embolization
- complications of endovascular procedures and their management
- treatment of dural arteriovenous fistulae
- treatment of acute cerebral ischemia
- treatment of cerebral vasospasm
- provocative testing
- electrophysiologic monitoring
- traumatic vascular lesions of the central nervous system, head and neck and spine
- balloon test occlusions
- tumor or vascular lesion embolization, intracranial and head and neck-embolization for epistaxis and middle meningeal artery embolization for subdural hematoma
- spinal embolization pharmacologic agents
- contrast materials
- sedatives and anesthetics
- analgesics
- thrombolytics
- antiplatelet agents
- antithrombotics
- vasoactive agents including vasopressors and vasodilators Periprocedural follow-up
- patient evaluation and decision making
- neurointensive care
- long-term follow-up

Mandatory curriculum/core competency requirements during advanced Neuroendovascular subspecialty include:

- a program that performs a minimum of at least 150 therapeutic CNS Endovascular procedures per year and meets the numbers required for their graduating complement of fellows (see candidate section). A program that does not meet individual recommended numbers for specific procedures may develop partnerships and collaboration with other programs/institutions that are within the 50 miles of the primary program to provide the necessary experience to their trainees. Programs failing to meet these criteria jeopardize

CAST accreditation and must promptly rectify any deficiencies and establish corrective actions in accordance with directives received from CAST and the NESAC.

- an institution where the training program is based should have an emergency room, an ACGME approved neurosurgery training program (ideally), training programs in Neurology and Radiology, and a dedicated neurointensive care unit. There should be a robust open surgical neurovascular program at the same institution also designated as a Comprehensive Stroke Center to provide a complete array of options and their exposure to trainees.

- at an institution that has a well-developed peer-review process for identification of complications and their discussion in a multidisciplinary fashion. The institution's patient population must have a diversity of illnesses from which broad experience in Neuroendovascular therapy can be obtained. The case material should encompass a range of neurological diseases, focusing on neurovascular pathology.

- an adequate variety and number of Neuroendovascular procedures must be available for each trainee, including treatments of aneurysms, brain arteriovenous malformations, arteriovenous fistulas of the brain, tumors of the central nervous system, occlusive vascular diseases, revascularization, traumatic vascular injuries, maxillofacial vascular malformations and tumors, as well as invasive functional testing.

Candidate:

The continuity of care must be of sufficient duration so that the trainee is familiar with the outcome of these procedures. A recommended minimum of 150 therapeutic procedures as primary operator are required to ensure that the trainee receives the needed exposure to the diversity of cerebrovascular diseases and the endovascular procedures brought to bear in their treatment.

The specific institutional and fellow case requirements reflected in the CAST Fellowship program case report Form must include:

- **Total aneurysm treatments (ruptured and unruptured) (minimum 40)**
- **Ruptured aneurysms (minimum 10)**
- **Intracranial embolizations (AVM, AVF, Tumor) (minimum 20)**
- **Intracranial or extracranial stent placements or angioplasty (non-aneurysmal) (minimum 20)**
- **Acute ischemic stroke treatments (minimum 40)**
- **Head and neck embolizations (excluding MMA) (minimum 15)**
- **Spinal angiograms and/or embolizations (minimum 5)**
- **MMA embolization**

Documentation of Clinical Experiences

The fellowship program should collect data for all cases in a NESAC approved endovascular database, which permits data entry for ALL endovascular procedures at each participating institution and their subsequent clinical outcomes. This dataset should be applied to local, regional, and national standards to provide comparative effectiveness between different approaches and their respective outcomes, to prepare for expected federal and state reporting requirements for outcomes-based reimbursement, and for many other potential academic and research related opportunities.

Each trainee must also maintain a personal case log, which the program director must certify at the completion of training. The Neuroendovascular fellowship director must submit the entire clinical experience of the Neuroendovascular program and its trainees in the format prescribed by NESAC and CESAC. The list of procedures and the logs must be made available to the NESAC at the time of its review of the Neuroendovascular training program. In addition, resident and fellow scholarly environment and activities should be reported.

Scholarship can be defined as the scholarship of discovery, as evidenced by peer reviewed funding or by publications of original research in peer reviewed journals; the scholarship of dissemination, as evidenced by review articles or chapters in textbooks; and the scholarship of application, as evidenced by the publication or presentation of specialty specific educational information at local, regional, or national professional and scientific society meetings.

Complementary to scholarship is the regular participation of the teaching staff in clinical discussions, rounds, journal clubs, and research conferences in a manner that promotes a spirit of inquiry and scholarship (e.g., the offering of guidance and technical support for fellows involved in research, such as research design and statistical analysis); and the provision of support for fellows' participation, as appropriate, in scholarly activities.
Graduate medical education must take place in an environment of inquiry and scholarship in which trainees participate in the development of new knowledge, learn to evaluate research findings, and develop habits of inquiry as a continuing professional responsibility. The responsibility for establishing and maintaining an environment of inquiry and scholarship rests with the teaching staff. While not all members of a teaching staff must be investigators, the staff as a whole must demonstrate broad involvement in scholarly activity.

The staff activity should include:

- active participation in regional or national professional and scientific societies, particularly through presentations at the organizations' meetings and publications in their journals.

- participation in research, particularly in projects that are funded following peer review and/or result in publications or presentations at regional and national scientific meetings.
- offering of guidance and technical support (e.g., research design, statistical analysis) for residents/fellows involved in research.
- provision of support for resident/fellow participation in scholarly activities

The trainee activity should include:

- daily rounds with the attending faculty during which patient management decisions are discussed and made.
- conferences organized by the faculty and held to allow discussion of topics selected to broaden knowledge in the field of Neuroendovascular. Specifically, teaching conferences should embrace the scope of Neuroendovascular as outlined above. Conferences should include journal clubs, pathology meetings, and neuroanatomy dissection, simulation and flow-model courses related to Neuroendovascular.
- interactive didactic conference time and interdepartmental meetings between neurosurgeons, neuroradiologists and neurologists and any other specialties as indicated that may be relevant to patient care.
- regular review of all mortality and morbidity related to the performance of Neuroendovascular procedures must be documented. Trainees must participate actively in these reviews, which should be held at least monthly.
- encouragement to attend and participate in local extramural conferences and should attend at least one Neuroendovascular related national meeting (CV Section of AANS/CNS, SNIS, SVIN) and one advanced course related to Neuroendovascular while in training.
- familiarity with and participation in the design, production, and interpretation of clinical and basic research studies pertinent to endovascular therapies.

DUTY HOURS AND THE WORKING ENVIRONMENT

Providing fellows with a sound didactic and clinical education must be carefully planned and balanced with concerns for patient safety as well as resident and fellow well-being. Each program must ensure that the learning objectives of the program are not compromised by excessive reliance on trainees to fulfill service obligations.
Didactic and clinical education must have priority in the allotment of fellows' time and energy. Duty hour assignments must recognize that faculty and fellows collectively have responsibility for the safety and welfare of patients.

Supervision of Residents/Fellows

All patient care must be supervised by qualified faculty. The fellowship program director must ensure, direct, and document adequate supervision of fellows at all times.

Trainees must be provided with rapid, reliable systems for communicating with supervising faculty. Faculty schedules must be structured to provide fellows with continuous supervision and consultation.

Duty Hours

Defined as all clinical and academic activities related to the fellowship program, i.e., patient care (both inpatient and outpatient), administrative duties relative to patient care, the provision for transfer of patient care, time spent in-house during call activities, and scheduled activities such as conferences.
Duty hours do not include reading and preparation time spent away from the duty site.
Faculty and fellows must be educated to recognize the signs of fatigue and adopt and apply policies to prevent and counteract its potential negative effects.

On-Call Activities

The objective of on-call activities is to provide fellows with continuity of patient care experiences throughout a 24-hour period. In-house call is defined as those duty hours beyond the normal

workday when fellows are required to be immediately available in the assigned institution. Back-up support systems must be provided when patient care responsibilities are unusually difficult to prolong, or if unexpected circumstances create resident fatigue sufficient to jeopardize patient care.

Oversight

Each program must have written policies and procedures consistent with the Institutional and Program Requirements for trainee duty hours and the working environment. These policies must be distributed to the trainees and the faculty. Duty hours must be monitored with a frequency sufficient to ensure an appropriate balance between education and service.

EVALUATION

Trainee

The faculty must evaluate in a timely manner the fellows whom they supervise. In addition, the training program must demonstrate that it has an effective mechanism for assessing trainee performance throughout the program, and for utilizing the results to improve performance.

Assessment includes:

- the use of methods that produce an accurate assessment of the fellow's competence in patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.
- the regular and timely performance feedback to fellows that includes at least semiannual written evaluations. Such evaluations are to be communicated to trainees in a timely manner and maintained in a record that is accessible to each resident/fellow.
- the use of assessment results, including evaluation by faculty, patients, peers, self, and other professional staff, to achieve progressive improvements in the fellow's competence and performance.
- the program director must provide a final evaluation for each fellow who completes the program. This evaluation should verify that the fellow has demonstrated sufficient professional ability to practice competently and independently. This should be reflected in the data entered in annual report and can be included in the Fellowship Program Director attestation letter.

Faculty

The faculty must evaluate in a timely manner the fellows whom they supervise. In addition, the training program must demonstrate that it has an effective mechanism for assessing trainee performance throughout the program, and for utilizing the results to improve performance. The performance of the faculty must be evaluated by the program no less frequently than at the midpoint of the accreditation cycle, and again prior to the next site visit.

The evaluations should include a review of their teaching abilities, commitment to the educational program, clinical knowledge, and scholarly activities. This evaluation must include annual confidential evaluations written by residents.

Program

The educational effectiveness of a program must be evaluated in a systematic manner. In particular, the quality of the curriculum and the extent to which the educational goals have been met by trainees must be assessed by the subspecialty program director. Written evaluations by trainees should be utilized in this process.

MAINTENANCE OF FELLOWSHIP ACCREDITATION

Each year, the program will be required to provide an annual report to CAST. CAST will offer continuous accreditation based upon review of the annual report. Although the fellowship will now have continuous accreditation with an approved annual report, factors that may impact ongoing accreditation include: any adverse actions of the relevant Review Committee (RC) relative to the parent residency training program, changes in fellowship leadership, failure to maintain a satisfactory volume of cases, major changes in the fellowship faculty, failure to complete required annual reports, and/or failure to provide sufficient administrative personnel needed to support the administration and educational needs of the fellowship.