



# CAST PROGRAM REQUIREMENTS FOR FELLOWSHIP EDUCATION IN **CEREBROVASCULAR**

## INTRODUCTION

- Eligibility
  - Fellowship programs which exist within the structure of an ACGME accredited residency in neurological surgery may apply for accreditation through the Committee on Accreditation of Subspecialty Training of The Society of Neurological Surgeons (CAST).
- Definition and Scope of the Subspecialty
  - Cerebrovascular neurosurgery (CVNS) is that subspecialty of neurosurgery that deals with the evaluation and medical and surgical treatment of diseases of the vasculature of the brain and spinal cord.

## DURATION/TIMING OF TRAINING

- Post-graduate (post-residency) fellowships:
  - Prior to beginning a CAST accredited neurological surgery subspecialty fellowship, each fellow candidate must have satisfactorily completed an ACGME or a foreign equivalent accredited residency training program.
  - The length of the fellowship will be twelve (12) months.
  - A CAST accredited program may not offer a fellowship position to a potential fellow until that fellow has completed their PGY3 year.
  - If the subspecialty is part of the match, it is required that programs and fellows participate according to that match's guidelines.
- Enfolded Fellowships:
  - The length of the fellowship is twelve (12) months.
  - A CAST accredited program may not offer a fellowship position to a potential fellow until that resident has completed their PGY3 year.
  - It is expected that all ACGME case requirements will have been met during this Chief year. Prior to beginning their fellowship, the resident candidate must already have a broad exposure to the full spectrum of neurosurgery with sufficient senior level clinical experience to warrant a focused experience to build upon his/her already acquired skills. It is expected that fellow candidates

already have both technical expertise and intellectual maturity to understand and apply the material available in subspecialty training (Milestone Level 4).

- If a candidate is pursuing an enfolded CAST-accredited fellowship during their residency, that fellowship training must occur following the Chief Resident year as a PGY7 if the Chief year was completed as a PGY6.
- If the subspecialty is part of the match, it is required that programs and fellows participate according to that match's guidelines.

- General Description of the Objectives/Goals of Education in the Fellowship

- The fellowship training must provide broad educational experience in cerebrovascular neurosurgery that will complement that training in the residency to promote further acquisition of knowledge and skills in the subspecialty.
- The fellowship will be 12 months in duration and fellowship training will be spent in a clinical CVNS program with experience under the direction of specified clinical faculty. This period of time must provide the trainee with an organized, comprehensive, supervised, full-time educational experience in the field of CVNS. This should include comprehensive patient care, diagnostic modalities, the performance of surgical procedures, and the integration of non-operative and surgical therapies into clinical patient management.
- Each fellowship should provide a broad exposure to clinical evaluation and appropriate patient selection for operative and non-operative management in both the inpatient and outpatient settings.
- Each fellow should actively participate in the operative management of a wide range of conditions which may include including both extracranial and intracranial vascular diseases and abnormalities. Progressive responsibility in patient management should be provided. The fellow should demonstrate proficiency in cerebrovascular neurosurgery techniques by the conclusion of the training program.
- Clinical, anatomic, and neuroscience research constitute an integral component of the educational experience and provision should be made for the successful completion of research projects.

## **INSTITUTIONAL ORGANIZATION**

- The Sponsoring Program and Institution

- The sponsoring neurosurgical residency program and its affiliated institutions must provide sufficient breadth and depth of operative procedures in CVNS neurosurgery to sustain fellowship training. The sponsoring institution should be identified as a regional referral resource for patients with cerebrovascular diseases. Additionally, there must be faculty, administrative and financial resources, research, and laboratory facilities to meet the educational needs of the fellowship trainee and to enable the program to comply with the requirements of accreditation.
- Recognizing the interdisciplinary nature of comprehensive care for patients with cerebrovascular surgical conditions, it is required that within the institution(s) of the fellowship there shall exist clinical facilities and faculty in neuroradiology (including interventional capabilities), stroke neurology, intensive care, neuroanesthesiology, neurovascular physiology (vascular laboratory), and endovascular neurosurgery/interventional neuroradiology/interventional neurology.

- Support for the fellowship program by the sponsoring department/division of neurosurgery must be demonstrated in writing by the program chair at the time of application for or renewal of accreditation.
- Participating Institutions
  - Participating institutions shall be limited to those able to provide the educational environment important for a meaningful fellowship experience.
  - In most instances cerebrovascular neurosurgical fellowships will occur at a single institution. Depending on local circumstances, training may be spent at additional institutions/sites which may provide special resources for training. Those sites must be within 50 miles of the primary site.
  - The primary teaching staff must be members of the faculty of the sponsoring program.
  - Only one CAST approved fellowship for each subspecialty per training program will be allowed at any one time.
- Appointment of Fellows
  - In general, only one fellowship position per fellowship training program will be allowed at any time, however accreditation of additional positions will be considered by CAST. In determining the merit of additional fellowship positions, the Committee will consider:
    - The presence of a faculty of national stature in cerebrovascular neurosurgery.
    - The quality of the educational program.
    - The quality of clinical care.
    - The total number and spectrum of institutional cases.
      - There should be 2X the institutional cases for an increase from one to two fellows, 3X for three fellows, etc.
  - The quality of clinical and research programs.
  - The quality of fellows trained by the program.
    - The program should have graduated one fellow meeting case minimums for an increase to be approved
  - The impact of fellows on the clinical and educational experience of the neurosurgical residents within the sponsoring program.
  - Selection of candidates for the fellowship position must be consonant with the criteria established by the sponsoring program. The fellowship director must adhere to the criteria for fellowship eligibility specified in this document. Appropriate candidates for fellowship position are senior level trainees in or graduates of ACGME accredited (or its equivalent as approved by the SNS CAST) neurosurgical training programs.
  - A high rate of fellow attrition from a program may adversely affect the fellowship accreditation status.

## **FACULTY QUALIFICATIONS AND RESPONSIBILITIES**

- Fellowship Program Director (FPD) Qualifications
  - The fellowship director must be appointed by and be responsible to the chair of the sponsoring neurologic surgery residency program.

- The fellowship director shall be a neurologic surgeon who possesses special expertise in the evaluation and surgical, medical management of cerebrovascular neurosurgical problems and whose practice is concentrated in CVNS.
- The fellowship director must be certified by the American Board of Neurological Surgery or possess equivalent qualifications as determined by CAST.
- The Fellowship Program Director should be an individual with extensive experience and who is considered an expert in the field.

- Fellowship Program Director (FPD) Responsibilities

- The FPD must assume responsibility for the training program and devote sufficient time to the educational program including the following:
  - Preparation of a written curriculum outlining the educational goals of the program with respect to knowledge, skills, and other attributes to be attained during the fellowship. This statement must be distributed to the fellow and members of the teaching staff and be available for review.
  - Selection of fellows in accordance with institutional and departmental/division policies.
  - Selection and supervision of the teaching staff and other program personnel at the institution(s) participating in the program
  - The supervision of the fellow through explicit written directives relative to responsibilities in-patient care as well as supervisory lines. These guidelines must be communicated to all members of the program faculty. Fellows must be provided with prompt, reliable systems for communication and interaction with supervisory physicians.
  - Regular evaluation of the fellow's knowledge, skills, and overall performance, including the development of professional attitudes.
- The fellowship director, with participation of members of the teaching staff, shall:
  - Evaluate the knowledge, skills, and professional growth of the fellow using appropriate criteria and procedures.
  - Communicate each evaluation to the fellow in a timely manner.
  - Advance fellows to positions of increasing responsibility based on satisfactory progression in patient management, scholarship, and professional growth.
  - Maintain a permanent record of evaluations of each fellow and have it accessible to the fellow and other authorized personnel.
  - Provide a written final evaluation for the fellow on completion of the program. This evaluation must include a review of the fellow's performance during the final period of training and verification of the fellow's demonstrated professional abilities and competence for independent practice. This final evaluation should be part of the fellow's permanent record maintained by the institution.
  - Implement all procedures, as established by the sponsoring institution, regarding academic discipline and complaints or grievances pertinent to the fellowship trainees.
  - Monitor fellow's stress, including mental or emotional conditions affecting performance or learning and drug or alcohol-related dysfunction. Fellowship directors and teaching staff

should be sensitive to the need for timely provision of confidential counseling and psychological support services to the fellow. Training situations that consistently produce undesirable stress on the fellow must be evaluated and modified.

- Prepare accurate statistical and narrative descriptions of the program as required by the CAST.
- Notify CAST regarding major programmatic changes.

- Other Teaching Faculty Qualifications and Number

- All clinical faculty members who are neurologic surgeons shall be certified by, or be in the certification process of, the American Board of Neurological Surgery or possess equivalent qualifications as determined by CAST.
- The primary teaching staff should be based at the sponsoring institution or its additional institutions at which the fellow will rotate.
- All members of the teaching staff must demonstrate a strong interest in the education of fellows, sound clinical and teaching abilities, support of the goals and objectives of the fellowship, a commitment to their own continuing medical education, and participation in scholarly activities.
- If multiple institutions are approved for participation in the fellowship program, a member of the teaching staff (site director) at each participating institution must be specifically designated to assume responsibility for the day-to-day activities of the fellowship at that institution with overall coordination by the fellowship director.
- The faculty must have regular documented meetings to review the fellowship training, the financial and administrative support of the fellowship, the volume and variety of patients available for educational purposes, the performance of members of the teaching staff, and the quality of fellowship supervision.

- Non-physician faculty and other clinical personnel

- This should include all additional and necessary professional, technical, and clerical personnel to support the program. This includes specially trained nurses and technicians who are skilled in radiological equipment, critical care instrumentation, respiratory function, and laboratory medicine.
  - Fellowship Program Coordinator/Administrator
    - A Fellowship Program Coordinator (FPC)/Administrator 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/Administrator 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%                        |

## LOGISTICS OF TRAINING

- The Educational Program
  - All educational components of the fellowship should be related to the specified goals and must not interfere with the training opportunities of residents who are members of the sponsoring neurosurgical residency program.
  - The CAST Accredited fellowship program and/or structure must function in synchrony with the ACGME Residency Review Committee (RRC) review of the sponsoring residency program. RRC action against the sponsoring residency program may constitute cause for withdrawal of accreditation by CAST.
- Clinical Components
  - The responsibility or independence given to fellows in patient care must be dependent upon the fellow's demonstrated knowledge, manual skill, experience in the complexity of the patient's illness, as well as the perceived risks of surgical management.
  - A portion of the fellowship experience should be allocated to training in an outpatient clinic or office setting which provides preoperative, perioperative, and postoperative continuity of patient care.
- Other Components
  - The fellow must actively participate in scholarly activities and should contribute to the education of neurosurgery residents and medical students.
  - The fellowship program should provide opportunities for the fellow to engage in research related to the subspecialty.
  - Each fellow must have at least one academic contribution as first author in one of the following:
    - peer-reviewed paper
    - book chapter
    - presentation at a major meeting which will need to be detailed in the annual report

## FELLOWSHIP POLICIES

- Supervision
  - All patient care services must be supervised by appropriately qualified faculty in accordance with institutional guidelines.
  - The fellow who has completed an accredited neurosurgery residency program may function independently as a junior staff neurosurgeon consistent with institutional and departmental/division policies.
  - The fellowship director must insure, direct, and document proper supervision of the fellow at all times by attending physicians with appropriate experience for the severity and complexity of the patient's condition. The fellowship trainee must be provided with rapid, reliable systems for communication with supervisors.
  
- Maintenance of Case Logs
  - The fellowship program director must maintain accurate case logs of the cerebrovascular\ neurosurgery case material operated annually within the institution and the subspecialty experience of the graduating chief resident throughout his training as well as that of the fellow.
  - The fellow must maintain an accurate prospective case log of his/her operative cases throughout the fellowship which documents all operative cases and the level of responsibility in the case (assistant versus primary surgeon).
  
- Evaluations
  - As noted previously, there shall be written evaluations and constructive discussions of the fellow by the faculty relative to performance and accomplishments of stated goals. These evaluations must occur at a minimum of two times per year and be maintained in a permanent file.
  - The fellow shall provide an evaluation of the faculty and fellowship program. This may be submitted either to the fellowship or program director at completion of the fellowship training. This evaluation should be maintained in a permanent file for review by the CAST if requested.
  
- Duty Hours and Conditions of Work
  - Duty hours and work conditions for subspecialty fellows must be consistent with ACGME, institutional, and program requirements for residency training in neurological surgery for those individuals who are in the last year of residency. Post residency fellow duty hours and work conditions must be consistent with the regulations of the sponsoring institution.

## PROCEDURAL/CASE MINIMUM REQUIREMENTS

- Demonstrate competency with all of the procedures listed below having completed at least the minimum number identified below during the fellowship:

### Institutional

- Craniotomy for aneurysm: **minimum 50**
- Vascular malformations (AVM, dAVF, Cav Mal): **minimum 40**
- Craniotomy or MIS (endoscopy) for ICH: **minimum 25**
- STAMCA bypass or EDAS: **minimum 15**
- CEA or TCAR: **minimum 15**
  - **Institutional total: 150 minimum**

### Fellow

- Craniotomy for aneurysm: **minimum 25**
- Vascular malformations (AVM, dAVF, Cav Mal): **minimum 25**
- Craniotomy or MIS (endoscopy) for ICH: **minimum 10**
- STAMCA bypass or EDAS: **minimum 10**
- CEA or TCAR: **minimum 10**
  - **Fellow total: 100 minimum**

## MAINTENANCE OF FELLOWSHIP ACCREDITATION

- Each year, the FPD for every accredited CAST fellowship program is required to submit an annual report. CAST will offer continued accreditation based upon review and approval of the annual report. For each annual report, the following must be included:
  - Demographic/contact information for fellowship sites and leadership
  - Full faculty list
  - Detailed block diagram and fellow schedule
  - Institutional case numbers for academic year in review
  - Fellow case numbers for academic year (when applicable)
  - Attestation letter from the fellowship program director
  - Support letter from Chair of department
- Factors that may impact accreditation renewal include:
  - Adverse actions of the Neurological Surgery 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 provide adequate administrative support
  - Failure to complete required annual reports completely and accurately.