



CAST PROGRAM REQUIREMENTS FOR FELLOWSHIP EDUCATION IN NEUROCRITICAL CARE

DEFINITION OF NEUROCRITICAL CARE

Neurocritical care involves the comprehensive care of critically ill neurological patients. The ultimate goals of neurocritical care are to resuscitate and treat whole-body systems to maximize the healing milieu (and therefore outcomes) of the neurological patient. This is accomplished by providing appropriate therapies to treat primary injuries and illnesses, minimize secondary neurological injury and provide neuroprotection, prevent medical and surgical complications, and facilitate the transition to other recovery environments along the continuum of care. Neurocritical care specialists or neurointensivists manage the full spectrum of critical care diagnosis and management including multi-system organ dysfunction and have additional special expertise in central and peripheral nervous system physiology, diagnosis, and management. These individuals may have primary training in a variety of medical disciplines, including neurological surgery, neurology, anesthesiology, emergency medicine, internal medicine and pulmonology, surgery or other disciplines. Expertise in neurocritical care, however, supersedes primary training, and includes proficiency with standard forms of intensive care unit (ICU) monitoring (e.g., cardiovascular hemodynamic monitoring and mechanical ventilation), as well as specialized forms of neurological monitoring (e.g., intracranial pressure and other forms of invasive neuromonitoring and continuous EEG monitoring) and interventions for neuroprotection (e.g., therapeutic hypothermia and induced pharmacological coma). Neurointensivists work closely with other medical specialists in the multi-disciplinary management of patients, and with other professions (nursing, pharmacology, rehabilitative therapies, social work, etc.) for interprofessional team-based patient-centered care. Programmatic development for care improvements using evidentiary bases, consensus, and best practices, while still providing individualized care based upon patient physiology and treatment goals, is a key element of neurocritical care. Although neurosurgical residency provides extensive exposure to neurocritical care throughout the training experience and encompasses requirements for core competencies necessary to manage the neurological elements of most neurosurgical patients, additional focused training in neurocritical care is available. The aims of SNS-CAST fellowships in neurocritical care are to provide sufficient expertise in the primary management of all aspects of care, including pulmonary, cardiac, renal, gastrointestinal, hematological, infectious, and other systemic problems. Therefore, additional training experiences are provided in the context of SNS-CAST accredited programs to ensure that the neurosurgical neurointensivist is well-prepared to address all aspects of medical management and nervous system pathophysiology. Requirements for SNS-CAST fellowship training programs in neurocritical care include training environments and resources of sufficient breadth and depth to confer the clinical knowledge, decision-making, and procedural skills needed to develop advanced proficiency. Additionally, trainees must be provided with education necessary to facilitate the administrative supervision of neurocritical care units and to provide education to trainees at all levels in neurocritical care.

DURATION AND SCOPE OF TRAINING

Program Requirements

- Training requirements apply to neurological surgeons not qualifying for practice-track certification / continuous certification that ended in 2020.
- Given the extensive duration of exposure to neurocritical care and required competencies to be obtained during neurosurgery residency, SNS-CAST fellowships may be completed in an “enfolded” fashion, i.e., completed within the seven-year course neurosurgical residency.
- Fellowship in neurosurgical critical care may also be accomplished after completion of formal residency training (post-graduate).
- The duration of dedicated training time to neurocritical care should total no fewer than twelve (12) months for neurological surgeons, regardless of whether training is completed during residency or post-residency. o These twelve months of training would ideally occur in six (6) to twelve (12)- month long experiences but may be completed in blocks no shorter than four (4) months. o Because the first three years of residency training are considered to be foundational experiences, these twelve months of training must take place only in the Post-Graduate-Year (PGY) 4 and above if completed during residency.

- Training must involve advanced educational and clinical activities related to the care of critically-ill patients including but not limited to neurological and neurosurgical patients. During these training blocks, neurosurgical residents and fellows should not routinely be engaged in operative care of patients beyond intensive care procedures (e.g., tracheostomy, intracranial monitoring). Training should be dedicated to maintaining a continuous presence in the ICU except for night and weekend on-call experiences in surgery.
- The SNS-CAST neurocritical care training program must include educational activities in a hospital with a dedicated neurocritical care unit and should encompass experiences in other ICU settings, such as a trauma ICU, cardiac ICU, surgical ICU, or medical ICU.
- Block diagrams must be provided for all new applications and renewals for accreditation and intercurrently for major changes in the block design.
 - Block diagrams need to contain sufficient information to describe the experience
 - Narrative descriptions of the rotations, and educational rationales for each must be submitted for initial and renewal applications and for any significant changes in block design. Fellows
- For the purposes of this accreditation document, all neurosurgical neurocritical care trainees are designated “fellows” even though they may be participating in an enfolded fellowship experience. This is to distinguish this experience from typical resident rotations. They are further designated as “enfolded fellows” for those still in residency or “post-graduate fellows” for those who have completed residency. The terms “trainee” and “learner” are also used interchangeably to refer to the fellow regardless of level (enfolded or post-graduate).

INSTITUTIONAL REQUIREMENTS

Sponsoring Programs

- SNS-CAST neurocritical care training programs must be housed within an institution that has an Accreditation Council of Graduate Medical Education (ACGME)-accredited neurosurgical residency training program in good standing.
 - When more than one critical care program exists within an institution, it is the responsibility of the institution and its critical care program directors to promote and coordinate interdisciplinary interactions and patient care services so as to ensure that all trainees are provided an optimal educational environment consistent with specified training requirements.
- The sponsoring institution must be appropriately organized for the conduct of graduate medical education (GME) in a scholarly environment and must be committed to excellence in both medical education and patient care.
- A letter demonstrating the sponsoring institution’s responsibility for the program must be submitted with each new application and reaccreditation cycle. This letter needs to include the following information:
 - Confirmation of sponsorship of the training program
 - Statement of the sponsoring institution’s commitment to training and education
 - Signature of the designated institutional official (DIO) of the institution as defined by ACGME. Clinical Care Educational Setting

Support for the Program

The Primary Clinical Institution must demonstrate the ability to promote the overall program goals and support educational activities.

A letter from the Chief Medical Officer or appropriate Department Chair(s) / Chief(s) at the Primary Clinical Institution must be submitted.

This letter must include the following:

- Confirmation of the relationship of the primary clinical institution to the program
- Statement of the primary clinical institution’s commitment to training and education
- A synopsis of specific clinical and educational activities that will be undertaken, supported, and supervised at the primary clinical institution.
- Assignments to other Participating Institutions must be based on a clear educational rationale, must have clearly stated learning objectives and activities, and should provide resources not otherwise available to the program.
- When multiple participating institutions are used, there should be assurance of the continuity of the educational experience.
- Each participating institution should have a local site director who is responsible for the supervision of the educational program at the participating institution. This individual reports to the Fellowship Program Director and must meet the requirements of a Core Faculty Member.
- Assignments at participating institutions must be of sufficient duration to ensure a quality educational experience and should provide sufficient opportunity for continuity of care.

- All participating institutions must demonstrate the ability to promote the overall program goals and support educational and peer activities.
If a participating institution is used, a participating institution letter must be submitted.
This letter must include the following:
 - Confirmation of the relationship of the participating institution to the program
 - Statement of the participating institution's commitment to training and education
 - A synopsis of specific clinical and educational activities that will be undertaken, supported, and supervised
 - Signature of the Chief Medical Officer or appropriate Department Chair(s) / Chief(s) of the participating institution

Intensive Care Units.

- The ICU environment must contain the necessary diagnostic, therapeutic and imaging equipment for fellows to gain competence in all essential core procedural competencies.
- The critical care units must exist as distinct entities, in designated areas within the institution, constructed and designed specifically for the care of critically ill patients.
- There must be designated space for confidential patient care conferences, sign-outs and hand-offs, and multi- and inter-disciplinary care conferences, ideally within the neurocritical care unit itself or immediately adjacent so as to maintain the physical presence of all within the care area.
- There must be private consultation areas for in-person and telephonic/video discussions with patient families.
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Case Mix

Sufficient patient volume must consistently exist for adequate training in nervous system and poly-system trauma, cerebrovascular insults and diseases, neurooncological disorders, spinal column and cord injuries and disorders, nervous system infections, disorders of cerebrospinal fluid, and other neurological problems (e.g., status epilepticus, myasthenia gravis, Guillain-Barre Syndrome, polyneuropathies, etc.) as outlined in the Neurocritical Care Curriculum. Sufficient case volumes must also include patients with respiratory failure or insufficiency, sepsis and infection, cardiac diseases and failure, renal injury and failure, hepatic dysfunction and failure, acute immunological abnormalities and other critical care problems

Training must include exposure to both pediatric and adult patients, although it is expected that the majority of training will involve adult patients.

Training must provide sufficient volume of those procedures that are integral to provision of critical care services.

Hospital General Resources

- There must be adequate space and equipment for the educational program, including meeting rooms, classrooms with audiovisual and other educational aids, office space for staff and fellows, and access to pertinent reference materials.
- The primary institution should provide the full gamut of services to neurological patients, including neurosurgery and neurology.
- An active emergency room is required.
- Around-the-clock provision of both critical care and operative services is required.
- Specialty neuroanesthesiology services are strongly encouraged.
- Availability of an acute stroke team is strongly encouraged.

Hospital Neurocritical Care-Specific Resources

Invasive neuromonitoring, ventricular drainage, and continuous electroencephalography (EEG) capabilities are required.

Multi-modality neuromonitoring capabilities are strongly encouraged.

Specialty nursing training in neurocritical care is required.

Access to all equipment and support personnel necessary to provide these services around the clock must be provided.

Program Changes

In the event of a change in the neurosurgical critical care program the Fellowship Program Director (FPD) or neurosurgical Department Chair shall notify the SNS Committee on Accreditation of Subspecialty Training. Examples of changes that must be reported to SNS-CAST include:

- Change in the FPD
- Substantial change in the Core Faculty
- Status change of the sponsoring neurosurgical residency training program
- Change in the primary clinical or participating institution(s)
- Substantial change in the block diagram schedule
- A program must obtain prior approval from SNS-CAST for changes in the program that may significantly alter the educational experience of the fellows. Upon review of a proposal for a program change, SNS-CAST may determine that additional oversight or a site visit is necessary. Changes that require prior approval include:
 - Change in number of approved fellowship slots
 - Addition of post-graduate slots in a program approved only for enfolded slots • Addition of enfolded slots in a program approved only for post-graduate slots
 - Due to the nature of enfolded fellowships, there may be years in which there is no fellow actively rotating on neurocritical care or no resident interested in participating in the program.
 - If the program does not participate in actively training a fellow in any 3-year period, the FPD must submit an update to SNS-CAST regarding the status of the program in a letter.

This letter must include:

- The names of all prior fellows and months/years of their rotations
- Any future anticipated trainees' names and anticipated rotation dates
- Discussion of any perceived obstacles or opportunities to increasing training experiences

PROGRAM PERSONNEL AND RESOURCE REQUIREMENTS

- The faculty of accredited programs consists of the Fellowship Program Director (FPD); the Core Faculty; and Other Faculty. Core Faculty are physicians who oversee clinical training in the subspecialty. The FPD is considered a Core Faculty member for the purpose of determining the fellow complement.
- Other faculty are physicians and other professionals determined to be necessary in order to deliver the program curriculum.
- All faculty members must possess a current, valid, unrestricted, and unqualified licenses to practice medicine in the state of the program. Fellowship Program Director (FPD)
- There must be a single program director responsible for administering the program. This individual must be a neurocritical care specialist with subspecialty expertise in neurocritical care and current certification by an appropriate certifying body, e.g., the American Board of Neurological Surgery (ABNS) / SNS-CAST for neurosurgeons or the United Council of Neurologic Subspecialties (UCNS) or the American Board of Neurology and Psychiatry (ABPN) for other disciplines.
- There may be a Co-Director or Associate Director from a related discipline, e.g., a neurologist if the FPD is a neurosurgeon, but this individual must also be certified in neurocritical care.
- The FPD is accountable for the operation of the training program and must be appointed by the chair of the sponsoring neurosurgical department.
- The FPD must be accountable to the Chair and the Residency Program Director of the neurosurgical residency program to coordinate training and other departmental goals, even if they also directly report to a Chair of another department, such as Neurology.
- The FPD must be one of the Core Faculty members. • The FPD, together with the fellowship core faculty, is responsible for the establishment and maintenance of a stable educational environment.
- Adequate duration of appointment for the FPD is essential in maintaining continuity of leadership and the educational environment.
- The FPD is responsible for preparing an accurate statistical and narrative description of the program and providing annual reports to SNS-CAST.
- The FPD must establish an evaluation system to both provide feedback to the fellows and obtain feedback on the program, including clinical rotations and faculty.

- The FPD must ensure the implementation of fair policies, grievance procedures, and due process, as established by the sponsoring institutional requirements and in compliance with the principles of the ACGME.
- The FPD is responsible for selecting fellows in accordance with institutional and departmental policies and procedures.
- The FPD must monitor fellow stress, including mental or emotional conditions inhibiting performance or learning, and drug- or alcohol-related impairment. Faculty
- Fellowship Core Faculty should also be appointed by the Chair of Neurological Surgery.
- Adequate durations of appointment for faculty are also essential in maintaining continuity of the educational environment.
- At each participating institution, there must be a sufficient number of faculty with documented qualifications and expertise to supervise patient care and instruct all residents in the training program, with relevant expertise in neurocritical care specifically.
- Core Faculty must be board certified in their primary discipline.
- Core Faculty should include at least two core faculty individuals certified in neurocritical care in addition to the FPD in order to provide continuous availability of educators with the required expertise.
- At least one member of the Core Faculty should be a neurosurgeon certified in neurocritical care. • Core Faculty must devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities.
- Core Faculty must demonstrate a strong interest in the education of residents and fellows, and must support the goals and objectives of the educational program.
- All faculty members must have appropriate clinical privileges in good standing at the relevant institution(s).
- Non-physician faculty must be appropriately qualified in their fields and possess appropriate institutional appointments.
- Both core and non-core teaching faculty may include specialists from neurological surgery, neurology, critical care, surgery, medicine, pediatrics, anesthesiology, emergency medicine, and other specialties who may be involved in the care of specific patients. Therefore, a collegial relationship must be maintained among the critical care services, including the ICU and training program directors and the faculty to enhance optimal patient care and assure educational opportunities for all residents and fellows.

Other Program Personnel

- Additional necessary professional, technical, and clerical personnel must be provided to support the program.
- Clinical staff members may include specially trained nurses, therapists, and technicians who are skilled in neurocritical care instrumentation, respiratory function, and laboratory medicine.
- Professional staff members may include interdisciplinary professionals who support the neurocritical care unit, such as pharmacy and pathology.
- Clinical support should be provided such that the fellows' experience is not unduly weighted toward patient service and should be primarily be educational in nature. Advanced practice providers (APPs) such as nurse practitioners and physician assistants should work cooperatively with the team members to enhance the educational experience and contribute to a collegial and educational environment.
- A Fellowship Program Coordinator (FPC) must be identified for the program and may be the program coordinator for a related accredited residency program to have sufficient knowledge of the intersection between SNS-CAST fellowship and ACGME residency requirements; ideally, the FPC for the ACGME neurosurgical program would serve in this role.
- Clerical support must be sufficient to allow the FPD to meet the reporting and regulatory functions of the program.

Other Program Resources

- There should be appropriate provision of resources to support scholarly activity (e.g., research laboratory space and equipment, computer facilities, office space, biostatistics support, etc.)

SCHOLARSHIP

There must be evidence of ongoing scholarship by both faculty and trainees of the program, as reported annually to SNS-CAST. This may occur in a variety of forms.

- The scholarship of discovery is evidenced by peer reviewed funding or publication of original research.
- The scholarship of dissemination is evidenced by publication of book chapters, review articles, best practices, guidelines, and other forms of medical communication.
- The scholarship of application is evidenced by the publication or presentation of specialty-specific educational information at local, regional, or national professional and scientific society meetings.

Complementary to the above forms of scholarship is the regular participation of the Faculty in clinical discussions, rounds, journal clubs, educational and research conferences, quality assessments and peer review, and the like, all to be done in a manner that promotes a spirit of inquiry and scholarship

- Faculty should offer regular guidance and technical support for residents and fellows involved in research, such as research design and methods, statistical analysis, scientific communication, and other key elements.
- The responsibility for establishing and maintaining an environment of inquiry and scholarship rests with the faculty and FPD.
- Active clinical and/or basic science research activities relevant to neurocritical care should be existent in each program.
- Each fellow is expected to participate in some form of scholarly activity throughout the duration of their training period, regardless of block structure.
- Fellows are expected to participate in the teaching of neurocritical care skills to more junior or less experienced residents, APPs, nurses, and other colleagues.

FELLOW APPOINTMENTS

Appointment of Fellows and Other Trainees

- The appointment of neurocritical care fellows and other learners must not dilute the experience nor detract from educational opportunities available to residents enrolled in the parent ACGME-accredited neurosurgical training program nor trainees in other programs.
- The neurocritical care fellow should enhance the experience of all learners within the institution.
- Assignment of other rotators on the service must be performed so as to optimize the training of all learners.
- Selection of fellows must follow documented departmental processes to allow for:
- In case of competition for training slots for enfolded fellows, selection must be based upon a pre-defined system, such as merit or lottery
- Equal opportunity selection processes must be employed for post-graduate fellows and appropriate regulations and institutional policies and procedures must be followed.
- Opportunities to enhance diversity, equity, and inclusion should be pursued.

PROGRAM RATIONALE / DESCRIPTION

Program Goals and Design

- Existence of required program design and sequencing of educational experiences and training environment are requisite for SNS CAST accreditation.
- 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 residents, fellows, and faculty, and must be reviewed with the trainees prior to their assignments.
- The training program must enable the trainee to acquire an advanced body of knowledge and level of skill in the management of critically ill neurologic and neurosurgical patients with competency to assume primary responsibility for care of these patients in the ICU setting. This advanced body of knowledge and level of skill must include the mastery of
- Trainees completing the program will be expected to be able to:
- Teach the subspecialty of neurological/neurosurgical critical care
- Undertake investigations into the various areas of neurologic and neurosurgical critical care, such as new instrumentation, identification of important physiologic parameters, evaluation of pharmacologic agents in critically ill patients, health outcomes and/or health policy issues related to neurosurgical critical care.
- Act as a Medical Director of a neurocritical care unit.
- The use of advanced technology and instrumentation to monitor the physiologic status of children or adults, including those in neonatal, pediatric, child-bearing, or advanced years

- Organizational and administrative aspects of a neurosurgical critical care unit
- Ethical, economic, and legal issues as they pertain to critical care.

Competencies

A fellowship program must require that its fellows obtain competence in the ACGME Competencies to the level expected of a new practitioner in the subspecialty. Programs must define the specific and unique learning objectives in the area including the knowledge, skills, behaviors, and attitudes required and provide educational experiences as needed in order for their fellows to demonstrate the following:

- Patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health
 - Medical knowledge about established and evolving biomedical, clinical, and basic sciences, as well as the application of this knowledge to patient care
 - Practice-based learning and improvement that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, and improvements in patient care
 - Interpersonal and communication skills that result in effective information exchange and collaboration with patients, their families, and other health professionals
 - Professionalism, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population
 - Systems-based practice, as manifested by actions that demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value
- Neurocritical Care Curricula The program must possess a well-organized and effective curriculum, both didactic and clinical. The curriculum must also provide residents/fellows with direct experience in progressive responsibility for patient management. Programs will be expected to provide experiences that will allow achievement of the SNS-CAST published Neurocritical Care Curriculum.

NOTE: There is a working committee updating the prior very detailed curriculum that will be published as well.

The program must comprise a didactic curriculum to allow trainees to acquire advanced knowledge of the following aspects of neurologic/neurosurgical critical care, particularly as they relate to the management of patients with hemodynamic instability, multiple system organ failure, and complex coexisting medical problems such as the following examples:

- Cardiorespiratory resuscitation
- Physiology, pathophysiology, diagnosis, and therapy of disorders of the cardiovascular, respiratory, gastrointestinal, neurological, endocrine, musculoskeletal, as well as of infectious diseases
- Metabolic, nutritional, and endocrine effects of critical illness
- Hematologic and coagulation disorders
- Polytrauma and the interface with neurotrauma
- Monitoring and medical instrumentation
- Critical pediatric neurologic/neurosurgical conditions
- Pharmacokinetics and dynamics of drug metabolism and excretion in critical illness
- Ethical and legal aspects of neurologic/neurosurgical critical care

The program must provide supervised clinical training that will enable the resident to gain competence in the performance and application of the following exemplar critical care skills:

Respiratory: airway management, ventilator management, adjunctive respiratory therapy techniques, management of respiratory failure

- Circulatory: invasive and noninvasive monitoring techniques, including computations of cardiac output and of systemic and pulmonary vascular resistance; monitoring, electrocardiograms; management of shock; indication for echocardiograms, advanced cardiac support and extracorporeal membrane oxygenation.
- Neurological: the performance of complete neurological examinations and application of commonly employed prognostic signs and scales; the use of multimodality intracranial monitoring techniques and of the electroencephalogram to evaluate cerebral function; application of hypothermia

- Renal: the evaluation and treatment of renal dysfunction, indication for renal replacement therapy
- Gastrointestinal: utilization of gastrointestinal intubation in the management of the critically ill patient; application of enteral feedings; management of percutaneous catheter devices; management of acute hepatic abnormalities.
- Hematologic: techniques of evaluation of coagulation status; appropriate use of component therapy o Infectious disease: classification of infections and application of isolation techniques, pharmacokinetics, drug interactions and management of antibiotic therapy, recognition and treatment of sepsis
- Nutritional: application of parenteral and enteral nutrition; monitoring and assessment of metabolism and nutrition
- Miscellaneous: use of special beds and equipment; employment of pneumatic antishock garments, traction, and fixation devices o Procedures: performance of bedside procedures integral to the provision of critical care (e.g., central lines, intubations, bronchoscopy, thoracostomy, thoracentesis/paracentesis, etc.)

Documentation of Clinical Experiences

The program must document that trainees in the program have had direct involvement in the management of a broad spectrum of critically ill neurologic/neurosurgical patients. This will be done by tracking and reporting the following data annually:

- The average daily census for each neurocritical care unit and other ICU to which fellows are assigned
- Neurosurgery program operative volumes as defined CAST

Each fellow's experience must also be submitted annually for continually filled programs and the most recent fellow's experience must be submitted annually for those with intermittently filled slots.

These experience logs must include:

- Documentation of completion of each rotation and dates
- Patient care management log as defined by CAST
- Procedural experience log as defined by CAST

Documentation of Scholarly Activities

Each program must provide a report of scholarly activities for each fellow upon his/her completion of their training program for those continually filling. For those with intermittent slots filled, scholarly activity should be reported annually for each rotation completed within the prior academic year. Each program should provide the overall scholarly activity report of the Core Faculty submitted to the ACGME annually to the SNS-CAST in its annual report.

WORK ENVIRONMENT

Providing trainees with a sound didactic and clinical education must be carefully planned and balanced with concerns for patient safety and resident 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 residents' time and energy.

Duty Hours

- Duty hours are defined as all clinical and academic activities related to the training 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.
- Duty hour assignments must recognize that faculty and learners collectively have responsibility for the safety and welfare of patients.
- Duty hours for enrolled fellows must follow the duty hours rules provided for the parent neurosurgical training program provided by ACGME.
- Duty hours for post-graduate fellows need to be well-defined and should follow the principles outlined above. In all cases, a duty hours policy for the program must be documented in the program application/reapplication materials, and the policy must be provided to trainees before the onset of their rotations.

On-Call Activities

The objective of on-call activities is to provide trainees with continuity of patient care experiences throughout a 24-hour period. "In-house call" is defined as those duty hours beyond the normal work-day, when residents are required to be immediately available inside the assigned institution.

Supervision

- All patient care must be supervised by qualified faculty.
- The FPD must ensure, direct, and document adequate supervision of residents at all times.
- Trainees must be provided with rapid, reliable systems for communicating with supervising faculty and have an understanding of appropriate escalation and chain of command policies and procedures.
- Faculty schedules must be structured to provide residents with appropriate levels of continuous supervision and consultation.
- Faculty and fellows must be educated to recognize the signs of fatigue, and the program should adopt and apply policies to prevent and counteract its potential negative effects.
- A supervision policy must be documented in every application/reapplication, and the policy must be shared with the trainees before the onset of their assigned rotations in the program.

Oversight and Compliance

Each program must have written policies and procedures consistent with the Institutional and Program Requirements for resident 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 and such that infractions can be identified and rectified if repeated.

Back-up support systems must be provided when patient care responsibilities are unusually difficult or prolonged, or if unexpected circumstances create resident fatigue sufficient to jeopardize patient care.

EVALUATION

Formative Evaluation

- The faculty must evaluate in a timely manner the residents/fellows whom they supervise. In addition, the training program must demonstrate that it has an effective mechanism for assessing trainees' performance throughout the program, and for utilizing the results to improve performance.
- Assessment should include the use of methods that produce an accurate assessment of trainees' competence in patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism and systems-based practice.
- Assessment should include 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 must be maintained in a record that is accessible to each resident/fellow.
- Assessment should include the use of assessment results, including evaluation by faculty, patients, peers, self, and other professional staff, to achieve progressive improvements in fellows' competence and performance.

Final Evaluation

- The program director must provide a final evaluation for each fellow who completes the program.
- This evaluation must include a review of the trainee's performance during the final period of education
- It should verify that the resident has demonstrated sufficient professional ability to practice competently and independently.
- The final evaluation must be part of the fellow's permanent record maintained by the institution. Faculty
- The performance of the faculty must be evaluated by the program regularly.
- In order to maintain trainee confidentiality in programs training small numbers, this should no less frequently than at the midpoint of the accreditation cycle.
- The evaluations should include a review of faculty teaching abilities, commitment to the educational program, clinical knowledge, and scholarly activities.
- This evaluation must include annual written confidential evaluations by residents rotating on neurocritical care services as well. Program

- The educational effectiveness of a program and rotations should be evaluated in a systematic manner designed to maintain the fellows' confidentiality. Fellowship Program Director
- The performance and effectiveness of the FPD should be evaluated no less frequently than semi-annually by the fellows and faculty in a systematic manner to maintain the fellows' and faculty members' confidentiality.
Documentation of Evaluation Process
- All evaluation processes need to be described in applications and reapplications for accreditation in sufficient detail to ensure SNS-CAST that the above goals are met.

MAINTENANCE OF FELLOWSHIP ACCREDITATION

Fellowship accreditation is valid for 5 years in the manner described in the successful application. At each successive five-year interval thereafter, the program will be required to file a renewal application to maintain accreditation status. Each year, the program will be required to provide an annual report to CAST. Although the fellowship is accredited for five years, factors that may impact ongoing accreditation include any 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, and failure to complete required annual reports. Please notify [CAST](#) immediately of any changes that occur.

