

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

69, ANNA SALAI, GUINDY, CHENNAI - 600 032.



SYLLABUS FOR

**POST DOCTORAL FELLOWSHIP IN CRANIAL AND SPINAL
NEUROTRAUMA**

ACADEMIC YEAR 2025 - 2026

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI

SYLLABUS – POST DOCTORAL FELLOWSHIP IN

CRANIAL AND SPINAL NEUROTRAUMA

This proposal outlines a comprehensive post-doctoral fellowship program in Cranial and Spinal Trauma, designed to equip neurosurgical specialists with advanced clinical and surgical expertise in the management of complex traumatic injuries to the central nervous system. The program's structure is aimed at fostering a deep understanding of the entire patient care continuum, from initial emergency response to long-term post-operative rehabilitation.

1. PROGRAM GOALS AND OBJECTIVES

The primary goal of this fellowship is to train highly skilled neurosurgeons who can independently and confidently manage all aspects of cranial and spinal trauma. Upon completion of the fellowship, the fellow will be able to:

- * Clinical Expertise: Develop a high level of proficiency in the diagnosis, evaluation, and non-operative management of a full spectrum of cranial and spinal trauma cases.
- * Surgical Mastery: Attain mastery in advanced surgical techniques for cranial and spinal trauma, including decompression, stabilization, and reconstruction.
- * Critical Care Management: Become an expert in the critical care management of neurotrauma patients within the specialized neurosurgery ICU setting.
- * Research and Academics: Contribute to the academic and scientific community through research, publications, and presentations, thereby advancing the field of neurotrauma.
- * Leadership and Teamwork: Develop leadership skills to effectively coordinate a multidisciplinary care team and act as a resource for junior residents and medical students.

2. ELIGIBILITY CRITERIA

To ensure a high standard of candidates, the following eligibility criteria are proposed:

- * Educational Qualification: The applicant must hold a M.Ch. or DNB in Neurosurgery from a recognized university or institution. Candidates who have successfully completed their final examinations and are awaiting the award of their degree may also be considered.

- * Age Limit: The upper age limit for the fellowship is typically 35 years at the time of application.

Citizenship: Preference may be given to Indian citizens, with consideration for international applicants on a case-by-case basis.

- * Professional Standing: The applicant must hold a valid medical license and be in good standing with their respective medical council.

- * Commitment to Research: A demonstrable interest in academic research, including prior publications or presentations, is highly desirable.

3. PROGRAM STRUCTURE AND HOURS REQUIRED

The fellowship is proposed as a full-time, one year programme, with a structured rotation schedule to provide comprehensive exposure to all facets of neurotrauma care. The schedule will emphasize hands-on experience and progressive responsibility. The following is a detailed breakdown of the required hours and activities:

A. Neurosurgery Intensive Care Unit (ICU)

Time Allotment: 2 months

Objectives:

- * Master the principles of neurocritical care, including intracranial pressure monitoring and management.

- * Develop expertise in the use of advanced hemodynamic and respiratory support.

- * Learn to diagnose and manage common complications in neurotrauma patients, such as cerebral edema, vasospasm, and infection.

- * Gain proficiency in performing ICU-based procedures, including central line placement and tracheostomy.

- * Participate in daily multidisciplinary rounds to formulate and execute comprehensive patient management plans.

Daily Activities:

- * Morning rounds with the neurosurgery and neurocritical care teams.

- * Hands-on management of neurotrauma patients, including ventilator adjustments, medication titration, and sedation management.

- * Attendance at neurocritical care didactics and journal clubs.

- * Supervision of junior residents and medical students in the ICU.

B. Neurosurgery Emergency Operations and Trauma Ward duties

Time Allotment: 8 months

Objectives:

- * Develop rapid and accurate diagnostic skills for acute cranial and spinal trauma cases in the emergency setting.

- * Gain extensive experience as a first assistant in all types of emergency neurosurgical operations.

- * Progress to performing a defined number of procedures as the primary surgeon under supervision.

- * Lead the initial evaluation and management of trauma patients presenting to the emergency room.

Daily Activities:

- * Being on-call for all neurotrauma emergencies.

- * Performing initial clinical evaluations and interpreting imaging (CT, MRI) in the emergency room.
- * Assisting in and performing emergency surgeries for conditions such as epidural hematomas, subdural hematomas, depressed skull fractures, and spinal cord injuries.
- * Participating in trauma team meetings and multidisciplinary case conferences.

C. Post-Operative Ward and Outpatient Clinic

Time Allotment: 2 months

Objectives:

- * Manage the post-operative care of neurotrauma patients, including wound care, pain management, and early mobilization.
- * Learn to identify and manage delayed complications such as hydrocephalus, seizures, and surgical site infections.
- * Gain experience in long-term follow-up and rehabilitation planning for patients with severe injuries.
- * Participate in outpatient clinics to assess patient recovery and make decisions regarding further treatment or rehabilitation.

Daily Activities:

- * Morning rounds on the post-operative neurosurgery ward.
- * Attending to patient-related issues and coordinating care with physical and occupational therapists.
- * Participating in outpatient clinics to follow up on post-operative patients and manage their long-term recovery.

D. Research and Academics

Time Allotment: Approximately 150 hours, integrated throughout the fellowship.

Objectives:

- * Complete a research project in cranial or spinal trauma, which may involve a retrospective review, prospective study, or a quality improvement initiative.
- * Prepare and submit a minimum of one manuscript to a peer-reviewed journal.
- * Present research findings at a national or international conference.
- * Actively participate in departmental grand rounds, journal clubs, and case presentations.

Daily Activities:

- * Dedicated protected time for research activities.
- * Mentorship meetings with a designated faculty member.
- * Attending and presenting at weekly academic conferences.
- * Writing and preparing research papers and presentations.

4. FACULTY AND MENTORSHIP

The fellowship program will be led by a team of experienced neurosurgeons specializing in cranial and spinal trauma. Each fellow will be assigned a primary mentor in the grade of a Professor, who will provide guidance on clinical training, surgical skill development, and research activities. The mentorship model will be structured to foster a strong professional relationship and ensure the fellow's successful completion of all program objectives.

5. EVALUATION AND CERTIFICATION

Fellows will be evaluated through a combination of daily clinical assessments, surgical case logs, formal written and oral examinations, and a review of their research and academic contributions.

Upon successful completion of all program requirements, the fellow will be awarded a Post-Doctoral Fellowship certificate in Cranial and Spinal Trauma.
