# Post Doctoral Fellowship in Spine Surgery
**(one year programme)**

## Curriculum

### *Introduction*

The impetus of this programme is to train a young Neurosurgical graduate regarding the nuances of spine surgical disorders to enable him/her to build a practice sustainably based on evidence, with a proper understanding of his/her limitations. The following shall constitute the core areas of training:

- Theory/didactic component
- Bedside case discussions
- Procedural skills: Direct observation and performing under guidance
- Academic
  - Thesis/Dissertation
  - Conference presentation
  - Publications in indexed journals
  - Involvement in research project
- Structured evaluation and follow-up

The syllabus includes the full spectrum of spinal ailments as given below. Fellows are expected to cover the curriculum syllabus through various in-house learning activities including power point presentations of the syllabus topics and to document all teaching tool activities in the log book. Further the copyright of the presentation should stay with the candidate and the mentor. This Power-point is to be evaluated by the mentor and may constitute part of internal assessment.

### *Theory/didactic component*

Following is the list of topics which can be covered

- Surgical approaches to Spine: CVJ, Cervical, Thoracic, Lumbar
- Basic osteology of spine: occiput, C1-C2, typical subaxial C-spine, Thoracic spine, Lumbar, Sacrum and sacroiliac joint • Basic sciences – Disc anatomy, biomechanics etc
- Spinal Instrumentation - Basics (Screw designs, hook designs etc.), Metallurgy basics (properties of SS, Titanium, CC, PEEK) Biomechanics and Applications.
- Functional /scoring systems in spine - over view of importance of various scoring systems in different pathologies, validity and reliability, ODI, VAS, SF36, SRS questionnaire, JOA, MJOA, Nurick's, ASEA grading etc, what's new in literature

- Bone Graft Substitutes - Concept of bone healing, pseudoarthrosis, Bone graft substitutes, BMP, Bone matrices, complications, advantages, recent literature
- Spinal fusion – PLF, PLIF, TLIF, XLIF/OLIF, 360 fusion- Indications, techniques, pitfalls and recent literature
- Thoracolumbar Trauma - Basic review of classification systems, importance in management, pitfalls, reliability.
- Cervical Trauma - Basic review of classification systems, importance in management, pitfalls, reliability.
- Lower Lumbar Fractures – Current evidence.
- Spondylolisthesis - classification systems, importance in management, pitfalls, overview of low grade versus high grade listhesis management, what's new in literature.
- Scoliosis – Early onset, Later onset and Adult
- TB spine past present and future. Conservative and Surgical.
- Osteoporotic Fractures- Conservative and Surgical
- Spinal Dysraphism, congenital spine disorders • CV junction anomalies and AC Malformations
- Syringomyelia.
- Spinal cord tumours
- Overview of literature on various spinal tumours, primary, secondary, management tips from literature, management guidelines on metastasis, GCT of the spine, Chordoma of the spine etc, what's new in spine surgery.
- Spinal Cord Injury and Rehabilitation strategies/goals
- Cervical myelopathy- aetiology, treatment options, pros and cons, recent trends
- Minimally invasive spinal surgery – indications and techniques.
- What's new in spine surgery?
- Common Complications and management strategy. (e.g., Dural tear, deficits etc)
- Living with burden of complications/social responsibility
- Work life balance and ethics in Spine Surgery

***Bedside case discussions***

The bedside case discussion usually should require 10-20 minutes of one-on-one discussion between the trainee and mentors, and the whole process should take roughly 30-45 minutes. At least 2 case-based discussions should happen in a month. This will also be part of Logbook and during exam viva he/she can be asked questions based on this. The trainee should be prepared with a set of patients representative of the topic of discussion, preferably admitted in the centre at the time and with whose care the candidate is significantly involved. The

supervisor may direct the trainee to assess a particular case for discussion and assessment. 1. An estimate of the complexity of the discussion should be given. 2. The trainee is rated according to how much prompting he or she required to demonstrate adequate reasoning and other skills, for safe care. 3. Feedback should be given at the time of the assessment. It should be specific, objective and constructive. The trainee should be given a documented advice on areas that he or she needs to focus on in his or her future study and structures that he or she may find helpful for approaching tasks such as formulating plans.

***Procedural skills: Direct observation and performing under guidance***

Direct observation of procedural skills is aimed to assess and provide structured feedback about both knowledge and technical proficiency regarding a discrete procedural skill. There should be adequate exposure to all types of surgical procedures. It is mandatory for the fellow to acquire basic surgical skills to perform basic spine surgeries under supervision. The fellow should have assisted as first assistant in all complex procedures. It will be again part of Logbook.

***Academic***

Thesis/Dissertation: It is a mandatory requirement that the Fellow writes up a dissertation during his fellowship and be submitted to the institute prior to appearing for the exit exam

A suggested timeline is as follows

- Dissertation topic to be finalized within a month of joining.
- Review of literature (basic) and Proforma completed within 2 months
- The thesis protocol has to be submitted to the ASSI in 3 months
- The topic must be presented to the thesis review board within 3 months of joining. This is preferably done with the thesis guide in attendance.
- An interim report should be presented to the thesis committee at the end of the 9 months
- Dissertation submission 1 month before the exit examination

The progress of dissertation should be updated and reviewed by the guide once in every 2 months.

Journal article/research project: The fellow is expected to complete at least one full research project leading to publication / submission in a peer reviewed journal. (This may or may not be his dissertation) Submitting research work for publication will be a prerequisite for sitting in the exit exam.

Conferences and workshops: The fellow is expected to present at least one paper at a national or international spinal meeting. It is suggested that the fellow gains additional skill by attending cadaver workshops, sawbones workshops, and learning centre experiences.

Logbook: The fellows are expected to maintain a logbook which includes details of the seminars and journal clubs presented, case-based discussions held with the mentor, conferences and workshops attended, papers presented at meetings and conferences and the surgical and other procedures they have been involved in. The procedure section should be labelled with observed, assisted, performed under supervision and performed independently depending on the level of involvement. The logbook should be countersigned by the mentor and produced at the Exit exam for evaluation.

***Structured evaluation and follow-up***

There should be a formative assessment test after six months in the form of Theory and Case based exam. End of fellowship evaluation will allow uniform core knowledge base, permit a complete assessment of a prospective surgeon's understanding of spine principles, assure quality in spine care, and thereby permitting better public access to spine surgery specialists.
It is strongly recommended that the trainee after successfully completing the fellowship exam should be back for a formal discussion with mentor at 1 year of clinical practice. This will provide the valuable feedback to the mentor and the institute, so as to fine tune the training program. The trainee can take this opportunity to discuss challenges faced in early practice. He can seek advice on identifying any skill gaps and take appropriate remedial measures.