

## **ASSI Fellowship Curriculum**

### **AIM**

The idea is to have a safe and Sensible spinal surgeons at the end of the fellowship who builds his/her practice sustainably based on evidence, with compassion on incremental basis and a clear understanding of his/her limitations. Spine fellowships are different than residencies. This is even more contrasting in Indian set up. They are more personal, tend to be one-on-one, and strongly reflects the interest of the fellowship director and colleagues, as well as the fellow.<sup>i</sup> Ultimately the use of this knowledge, training, education, and surgical techniques should result in improved patient care<sup>ii</sup>.

Similarly the aim of evaluation should be aligned with world's best teaching and training practices. It should be comprehensive rather than just focusing on theory/didactic component. This should ensure that the candidate has a minimum standard of knowledge expected of a specialist in their field. In addition it is reasonable to expect all medical trainees to achieve this same level of acknowledged competency<sup>iii</sup> and emotional stability to discharge spine services.

I believe the program should have the following sections which will form the core pillars of training.

- Theory /Didactic component – ASSI Spine Fellowship Syllabus (power point presentation).
- Case based Discussions(CBD)
- Procedure based assessment(DOPS)
- Research

### **Evaluation**

It should be based partly on internal assessment (CBD, ASSI Fellowship curriculum PPT, Research)and part on exit exam which can be in form of an oral examination, peer review, and discussion of the candidate's surgical practice. 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.

### **Criteria for eligibility and clearance of Exit Exam**

1. Obtaining >50% marks in Internal assessment i.e. Power point presentation and case based discussion (min 100/200) is a must for eligibility.

2. Submission of completed research work leading to one publication in a respected peer reviewed spinal journal.
3. Obtaining basic competency certificate (DOPS review) from the mentor.
4. Final assessment makes distribution:
  1. Exit Theory – 100 marks
  2. Exit Practical – 200 marks
  3. Case based Discussions (CBD) – 100 marks
  4. PPT – 100 marks
  5. Research – 100 marks (thesis / paper / publication)
6. Pass criteria 300/600.

### **ASSI Spine Fellowship Syllabus**

The syllabus should cover full spectrum of spinal ailments as tabulated below by the ASSI academic unit with inputs from other ASSI consultants are mentioned below.

If we are going for powerpoint presentations then the slides should be limited to 50 (90 is too big a number!!!) and the presentation is to be done within the training centre and the mentor needs to assess it.

*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.*

Following is the list of topics which can be covered for PPT.

- Approaches to Spine
  - Cervical
  - Thoracic
  - Lumbar
- Basic osteology of spine
  - 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, SF-36,SRS QUESTIONNAIRE, JOA, MJOA, Nuricks , ASEA grading, tomita, tokuhashi, wang bohlmans, odoms ,satisfactions indices etc , whats new in literature
- The Pharmacologic Management of Spine Pain

- Therapeutic Exercise for Low Back Pain
- Psychosocial Considerations in Spine Disorders
- The Interdisciplinary Treatment of Patients With Chronic Pain
- Bone Graft Substitutes - Concept of bone healing, pseudoarthrosis, Bone graft substitutes, BMP, Bone matrices, complications, advantages, recent literature
- Spinal fusion – PLF, PLIF, TLIF, XLIF , 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.
- ETHICS
- 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 –AIS classification and management
- Scoliosis – Congenital / Early onset
- Scoliosis - Neuromuscular
- Adult deformity – Assessment, Indications and management.
- TB spine past present and future. Medical and conservative.
- Osteoporotic Fractures overview with indications for cementing
- Work life balance
- Spinal Dysraphism
- CV junction anomalies and AC Malformations
- Syringomyelia.
- Spinal cord tumours
- Overview of literature on various tumors, primary, secondary, management tips from literature, management guidelines on metastasis, GCT SPINE, CHORDOMA SPINE etc, what's new in spine surgery.
- Spinal Cord Injury and Rehabilitation strategies/goals
  - Cervical myelopathy Options , pros, cons , recent trends
  - Minimally invasive spinal surgery – indications and techniques.
  - What's new in spine surgery?
  - Common Complications and management strategy.(Dural tear,deficits etc)
  - Living with burden of complications/social responsibility

## **Case BASED Discussions:**

The case-based discussion (CbD) usually should require 10-20 minutes of one on one discussion between the trainee and mentor, and the whole process should take roughly 30-45 minutes. This can be carried out in form of bedside clinic or as a separate one on one session between mentor and fellow.

The trainee brings representative case on the topic of discussion preferably from the admitted patients in center and in which he/she had significant involvement in the care. The assessor chooses the most appropriate one for discussion. Occasionally the supervisor of training may direct a trainee to have a particular case assessed and in this case the trainee needs to take file / care notes of that specific case for the assessment/discussion.

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.

Suggestion: ASSI could have a common database of anonymous cases on the below mentioned topics with following pathology or ward patients in which the fellow had substantial involvement.

1. Lumbar PIVD – Extraforaminal,Foraminal,recess,LARGE DISC.
2. Multiple level PIVD
3. Multilevel cervical compression – Myelopathic / OPLL
4. Thoracic disc herniation / OPLL
5. TB spine –Paediatric thoracic
6. TB spine adult - Lumbar and thoracic
7. Cervical PIVD
8. Thoracolumbar BURST Fracture
9. Post Surgery Acute deficit – management / conversation.
10. Scoliosis 1C/5C.
11. Early onset scoliosis.
12. Congenital scoliosis/kyphosis.
13. Metastatic spinal cord compression – management
14. Degenerative scoliosis – sagittal balance
15. Osteoporotic compression fractures.

## **Direct Observation of Procedural Skills**<sup>iii</sup>

Direct observation of procedural skills is aimed to assess and provide structured feedback about both knowledge and technical proficiency regarding a discrete procedural skill.

At the end of the tenure mentors needs to submit a summary of DOPS to the ASSI inter regards to candidate's competence.

The procedure itself may be done as either:

- a. Part of usual clinical workload.
- b. By simulation (for example, on a part task trainer).

The assessment has three components:

1. A discussion regarding relevant aspects of anatomy, indications, contraindications, complications and side effects, specialist equipment required, patient positioning and monitoring, and consent issues. It is useful to ask the trainee to outline how they will do the procedure and what precautions they will take before they start the procedure.
2. Observation of the consent process and the procedure.
3. Provision of feedback.

Towards the end of the assessment form, there is a global assessment on the level of supervision the assessor believes the trainee requires when performing the procedure.

This decision should be based on questioning and direct observation of the trainee's performance. It does not depend on how many times the trainee has performed the procedure or the level of training.

If the assessor believes the trainee still requires direct supervision for this procedure, they need to provide feedback and document in the assessment what the trainee needs to demonstrate in order to be able to do the procedure without direct supervision.

Suggested procedures for competency assessments (with numbers) to be done<sup>iv</sup>.

Minimum of ten procedures need to be assessed which constitute the basic spinal surgery skillset.

1. PIVD Lumbar (8 supervised)
2. PIVD cervical (5 supervised)
3. Lumbar decompression +/- TLIF ( 12 supervised)
4. Thoracic pedicle screw insertion (65 supervised)

5. Lumbar pedicle screws (80 supervised)
6. Lateral mass fixation (40 supervised)
7. Cervical cage and plate (10 supervised)
8. Cervical laminectomy (5 Supervised)
9. Thoracic laminectomy (5 Supervised)
10. Cementing ( 12 supervised)
- 11. Deformity correction (10 cases as first assistant)**
- 12. Osteotomy spine VCR/PSO/Ponte (10 cases as first assistant)**
13. Minimally invasive screw placement lumbar/thoracic (25 screws, 50 supervised)
14. Anterior approached thoracic/lumbar ( 10 supervised)
15. Noninstrumented posterolateral and posterior spinal fusion (5 to 10 supervised)
16. Management of spinal fractures through appropriate instrumentations

### **Research:**

The fellow is expected to complete at least one full research project leading to a publication in peer reviewed journal before appearing for exit exam.

He/she is also expected to write an additional case report to be published in peer review journal.

Submitting research work will be a prerequisite for sitting in the exit exam.

Further ASSI sponsored educational activities:

Webinars as a pilot project can be tried.

Additional exposure may be obtained from cadaver workshops, sawbones workshops, and learning center experiences. A center can organize a focussed workshop and other fellows may participate in it.

## **Follow up Evaluation:**

I strongly recommend 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 ASSI, 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.

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<sup>i</sup> [Spine \(Phila Pa 1976\)](#). 2000 Oct 15;25(20):2700-2. **Editorial on residencies and fellowships.**

[Garfin SR](#). **Comment on**

- [Resident and fellowship guidelines: educational guidelines for resident training in spinal surgery](#). [Spine (Phila Pa 1976). 2000]

<sup>ii</sup> Nestler SP. Orthopaedic surgery fellowships: a ten-year assessment. Fellowship accreditation and certification methodologies of other specialties. *J Bone Joint Surg Am* 1998;80:1843–6.

<sup>iii</sup> <http://www.anzca.edu.au/training/2013-training-program/assessment>

<sup>iv</sup> [Spine \(Phila Pa 1976\)](#). 2000 Oct 15;25(20):2703-7.

**Resident and fellowship guidelines: educational guidelines for resident training in spinal surgery.**

[Herkowitz HN](#), [Connolly PJ](#), [Gundry CR](#), [Varlotta GP](#), [Zdeblick TA](#), [Truumees E](#).