

North American Spine Society

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EDUCATIONAL GUIDELINES FOR RESIDENT TRAINING IN SPINAL SURGERY

Prepared by:

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OBJECTIVE

The purpose of this report is to present a guideline for residents and their program directors for training in the diagnosis and management of patients with spinal disorders. At the completion of a residency, the physician should have basic skills in the evaluation and treatment of children and adults with spinal disorders/complaints. While this training may be obtained through a variety of means, the responsibility to meet these needs ultimately lies with the individual resident and his/her program director.

Residency training in the care for spinal diseases can be divided into five categories: core knowledge, clinical evaluation, non-operative management, operative management, postoperative care and rehabilitation.

CORE KNOWLEDGE

Residency training should include directed study of the basic science of the spine. Critical areas of understanding should include: spinal anatomy, histology, biomechanics, physiology and pathophysiology. Important learning sources include: core lectures, library materials, journal clubs, basic science rotations, anatomy workshops, and/or off-site courses. Formal anatomic dissection of cadaveric spine specimens is strongly recommended.

Especially important aspects include: Pathophysiology and Natural History of the various common spinal disorders (e.g. degenerative, traumatic spinal cord and column injury, infection, benign and malignant tumors, osteoporosis and deformity), and the Biomechanical concepts as to what renders the spine stable or unstable and the effect of various types of fixation (internal and external) on the stability of the spine. The resident should be familiar with the spectrum of spinal disorders affecting children and adults.

CLINICAL EVALUATION

With a sound understanding of normal spinal anatomy, physiology, mechanics and pathology each resident should learn to evaluate various spinal disorders with the critical associated factors. Important examples include: herniated discs, spinal stenosis, scoliosis, spinal fractures, spinal cord injury, infections, tumors, spondylolisthesis and other potential forms of spinal instabilities and pain producing function limiting disorder.

Appropriate skills in the evaluation of spinal disorders should be obtained in a variety of clinical settings, including the outpatient clinic or office and the emergency department. The resident should become facile with physical and neurologic examinations in both elective and emergency settings. Competence should be achieved in the evaluation of various imaging modalities including plain radiographs, CT and MRI scans, myelogram, discograms, nuclear medicine scans, and electrophysiologic studies. The resident should, in conjunction with the attending physician, demonstrate ability to formulate a treatment plan.

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NON-OPERATIVE PATIENT CARE

Capability in formulating a treatment plan should coincide with experience in the acute and chronic management of spinal disorders. Each resident should become adept at the initial management of cervical, thoracic, and lumbar spine trauma. In particular techniques of spinal immobilization and the placement of skeletal Long traction should be part of residency training. In addition, training should include medical and hemodynamic management of patients with acute spinal injuries. In the outpatient setting, the resident should apply information regarding outcomes of operative and non-operative treatment of patients with spinal diseases. The logical and cost-effective management of low back pain and disability should be included in the outpatient spine care experience. The resident should obtain an understanding of the roles of the various non-operative modalities of spine care including: physical therapy, back school/education, injections (diagnostic and therapeutic), medications, activity alterations, exercise and non-standardized treatment alternatives.

SPINAL SURGICAL TRAINING

A resident should have significant exposure to spine surgery in the operating room setting. Additional exposure may be obtained from cadaver workshops, sawbones workshops, and learning center experiences. Certainly, not all spinal surgical producers can or will be included in each resident's experience. However, each resident should have some experience at a minimum in performing the following procedures at the conclusion of his/her residency:

- 1) Disc herniation surgery
- 2) Decompressive laminotomy/laminectomy/foraminotomy
- 3) Non-instrumented posterolateral and posterior spinal fusion
- 4) Anterior and posterior bone graft harvest
- 5) Management of spinal fractures through appropriate instrumentation and external immobilization
- 6) Understanding the management of spinal deformity

POST-OPERATIVE CARE AND REHABILITATION

Residents should have the opportunity to follow non-operative and operative patients through their entire treatment period. In addition, residents should become familiar with the management of basic spinal problems and should be able to recognize those conditions in spinal surgery that require emergent treatment or referral.

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