

**SPINE SERVICE ROTATION
ROTATION SPECIFIC OBJECTIVES (RSO)
DEPT. OF ORTHOPEDICS AND PHYSICAL REHABILITATION
UNIVERSITY OF MASSACHUSETTS**

The purpose of this RSO is to outline and clarify the objectives of the SPINE Service rotation at the UMASS Memorial Medical Center. This document is meant to serve as a guide to the educational objectives of the Spine Rotation and to delineate the expectations and responsibilities of the Resident and the Attending Faculty. It is imperative that this educational experience comply with the concepts of the core competencies outlined by the ACGME and mandated by the Residency Review Committee (RRC).

1. PATIENT CARE:

The resident is expected to provide patient care that is compassionate, appropriate, and effective. The resident will provide patient care for spine patients in the emergency department as well as the inpatient and outpatient setting.

2. MEDICAL KNOWLEDGE:

Residents must demonstrate knowledge of established and evolving biomedical, clinical, and epidemiological sciences, as well as the application of this knowledge to patient care. This care is to be based on the most current scientific information.

3. INTERPERSONAL COMMUNICATION:

The resident is expected to function effectively as a member of the health care team and demonstrate skillful information exchange with patients, families, hospital staff, fellow residents, and faculty. This includes comprehensive, timely, and accurate documentation in the medical record.

4. PROFESSIONALISM:

The resident is expected to act at all times in an ethical manner. The resident will demonstrate a commitment to treat all patients with respect, compassion, and a right to privacy. The resident will also demonstrate sensitivity to diverse patient populations, including but not limited to diversity in gender, age, race, culture, religion, disabilities, and sexual orientation. The resident will also demonstrate a responsiveness to patient needs that supersedes self interest.

5. PRACTICE BASED SYSTEMS AND IMPROVEMENT

Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning. Residents are expected to develop skills and habits to be able to meet the following goals:

- a. identify strengths, deficiencies, and limits in one's knowledge and expertise (self-assessment and reflection)
- b. set learning and improvement goals
- c. identify and perform appropriate learning activities
- d. systematically analyze practice using quality improvement (QI) methods, and implement changes with the goal of practice improvement
- e. incorporate formative evaluation feedback into daily practice
- f. locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems (evidence-based medicine)
- g. use information technology to optimize learning
- h. participate in the education of patients, families, students, residents and other health professionals

6. SYSTEMS-BASED PRACTICE:

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

Residents are expected to:

- a. work effectively in various health care delivery settings and systems
- b. coordinate patient care within the health care team and system
- c. incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate
- d. advocate for quality patient care and optimal patient care systems
- e. work in inter-professional teams to enhance patient safety and improve patient care quality
- f. participate in identifying system errors and implementing potential systems solutions

The six ACGME core competencies are to be taught by the spine faculty, who serve as role models and preceptors for the resident in the following settings: rounds, conferences, journal clubs, outpatient clinic, and other daily interactions. The residents will be made aware of the expectations as outlined in the Spine Rotation Specific Objectives at the beginning of their rotation. The resident will meet with faculty members mid rotation to assess his/her progress toward the Spine RSO and address any deficiencies. Progress will be monitored by faculty observation and an end of rotation evaluation using the milestones format.

EDUCATION OBJECTIVES

SPINE ROTATION

Junior Resident

The junior resident will spend approximately three-months on the spine service. The resident is expected to develop a knowledge base required to assess and treat disease and injury of the spine. This introduction is intended to incorporate the basic surgical skills required in the treatment of elective, urgent, and emergency spinal conditions. In general, the educational goals for the junior resident include the following: 1) learn a systematic approach to the assessment, diagnosis, and basic treatment of spinal conditions 2) develop and master the peri-operative and post-operative care of spine patients 3) learn basic surgical techniques required for spinal surgery.

The following specific learning objectives should help guide the self-directed learning process throughout the spine rotation:

- a. The musculoskeletal and spine specific history
- b. The musculoskeletal and spine specific physical exam, including a complete and thorough orthopedic neurologic evaluation
- c. The interpretation of skeletal radiographs, CT, MRI, and bone scan of the spine
- d. The appropriate use of consultants from other services in the pre-operative workup or the post-operative care for spine patients
- e. Understand appropriate non-operative care for axial neck and low back pain
- f. Diagnosis and basic non-operative and operative treatment of the various forms of degenerative cervical, lumbar, and thoracic spine pathology, including: disk herniations, spinal stenosis, spondylolisthesis, and deformity. This includes the clinical manifestations of these disease processes, including: axial pain, radiculopathy, neurogenic claudication, and myelopathy
- g. Recognition, thorough assessment, and early management of spine fractures and dislocations
- h. Recognition, thorough assessment, and understanding of traumatic neurologic injury, including complete spinal cord injury, incomplete spinal cord injury, cauda equina syndrome, conus medullaris syndrome, and nerve root injury. This includes knowledge and effective use of the ASIA spinal cord injury score.
- i. Basic understanding of the indications for non-operative treatment for spine trauma, including spinal precautions, bracing, halo crown and vest application, and spinal traction.
- j. Basic understanding of the indications for operative treatment of spinal fractures and dislocations

- k. Basic surgical approaches to the cervical, thoracic, and lumbar spine
- l. An introduction to basic segmental fixation techniques for the cervical, thoracic, and lumbar spine
- m. An introduction to decompression techniques, including laminotomy, laminectomy, and discectomy
- n. An introduction to techniques and indications for spinal fusion
- o. Understand the biology of different bone grafts used for fusion and the indications for their use, including iliac crest bone graft
- p. Learn techniques for harvesting iliac crest bone graft
- q. Mastery of suture and knot tying skills
- r. Mastery of post-operative pain management
- s. Recognize and manage wound complications, including infection, dehiscence, hematoma, drainage, and seroma
- t. Recognize, diagnose, and treat deep venous thrombosis and pulmonary embolism in spine patients
- u. Understand the importance and utilization of DVT/ PE prophylaxis in spine patients.
- v. Recognition, diagnosis, and basic treatment of spine /disk infections
- w. Recognition, diagnosis, and basic treatment of spine tumors, with special emphasis on metastatic disease in the spine

The expectations for the Junior resident on the Spine rotation include:

- a. Be a part of the spine service and care for patients who are treated for elective, urgent, and emergent spine pathology. The resident will make morning and afternoon rounds and should be keenly aware of all active and ongoing patient issues.
- b. Assist in the operating room on orthopedic spine surgical cases as assigned.
- c. Be involved in the care of spine patients from admission through discharge.
- d. Attend clinic at least one day per week with one of the spine attendings.
- e. Take in house night call. The resident will notify the responsible attending of any admissions and develop a treatment plan. The chief resident on call will need to be involved in the evaluation and assessment of spine patients with complex problems
- f. Attend all University campus teaching conferences including Grand Rounds, Morbidity/Mortality, and Core Curriculum. The attending will start all surgical cases that begin during conferences.
- g. Help plan and attend the spine indications conference at the memorial campus. The resident is expected to read and prepare for the conference based on the topic and will be asked to present cases for discussion.
- h. Participate in spine journal club during the rotation

- i. Comply with Massachusetts State Health Department Code Regulations and RRC guidelines regarding resident work hours. The resident should arrange for proper and thorough transfer of inpatient care when he/she must leave the hospital.

EDUCATION OBJECTIVES

SPINE ROTATION

Senior Resident

The overall goal for the senior resident on the spine service is to further develop their orthopedic knowledge and surgical skills in order to be competent to care for patients with spinal conditions who are encountered in the practice of general orthopedics. The senior resident will build on the knowledge and skills gained during their spine rotation as a junior resident. Each senior resident should begin the rotation by reviewing the junior resident learning objectives and addressing any deficiencies as the top priority. As a chief resident on the spine service, the resident will have more autonomy and responsibility. An important component of the responsibility as the chief resident on the spine service is mentoring and overseeing the junior residents on service. The resident will also fully participate with the attending in formulating treatment plans and making surgical decisions for orthopedic spine patients.

The following specific learning objectives should help guide the self-directed learning process throughout the spine rotation:

- a. Mastery of the orthopedic spine history
- b. Mastery and ability to perform a pertinent but thorough orthopedic spine physical exam, with emphasis on the orthopedic neurologic examination
- c. Indications, utilization, and interpretation of laboratory diagnostic tests and imaging studies of the spine, including radiographs, CT, and MRI
- d. Understanding the value and proper utilization of consultants from other medical disciplines for the care of spine patients
- e. Understand the non-operative treatment of axial neck and low back pain.
- f. Recognize and formulate non-operative and operative treatment for the various forms of degenerative cervical, lumbar, and thoracic spine pathology, including: disk herniations, spinal stenosis, spondylolisthesis, and deformity. This includes the clinical manifestations of these disease processes, including: axial pain, radiculopathy, neurogenic claudication, and myelopathy
- g. Recognition, management, and formulation of treatment plans for spine fractures and dislocations
- h. Recognition, management, and understanding of traumatic neurologic injury **and** how it impacts treatment, including complete spinal cord injury, incomplete spinal cord injury, cauda equina syndrome, conus medullaris syndrome, and nerve root injury. This includes mastery and ability to teach others the effective use of the ASIA spinal cord injury score.

- i. Thorough understanding of the indications for non-operative treatment for spine trauma, including spinal precautions, bracing, halo crown and vest application, and spinal traction.
- j. Thorough understanding of the indications for operative treatment of spinal fractures and dislocations
- k. Know the surgical approaches to the cervical, thoracic, and lumbar spine and be able to independently expose the posterior thoracic and lumbar spine
- l. Understand segmental fixation techniques for the cervical, thoracic, and lumbar spine and effectively assist with placement of fixation in the operating room
- m. Understand all decompression techniques, including laminotomy, laminectomy, and discectomy and perform them in the operating room while being assisted by the attending surgeon
- n. Understand techniques and indications for spinal fusion
- o. Understand the biology of different bone grafts used for fusion and the indications for their use, including iliac crest bone graft
- p. Independently harvest iliac crest bone graft
- q. Mastery of and ability to teach suture and knot tying skills
- r. Mastery of post-operative pain management
- s. Recognize and formulate treatment plans for wound complications, including infection, dehiscence, hematoma, drainage, and seroma
- t. Recognize, diagnose, and treat deep venous thrombosis and pulmonary embolism in spine patients
- u. Employ appropriate utilization of DVT/ PE prophylaxis in spine patients.
- v. Recognition, diagnosis, and ability to formulate treatment with the attending for spine /disk infections
- w. Recognition, diagnosis, and ability to formulate treatment with the attending for spine tumors, with special emphasis on metastatic disease in the spine
- x. Diagnosis and management of failure of non-operative and operative spine care.

The expectations for the senior resident on the Spine rotation include:

- a. Be the chief resident on the spine service and care for patients who are treated for elective, urgent, and emergent spine pathology. The resident will oversee morning and afternoon rounds and should direct the junior resident(s) with all active and ongoing patient issues.
- b. Actively participate in the operating room and assign the resident staff to the operating room on orthopedic spine surgical cases.
- c. Direct the care of spine patients from admission through discharge.
- d. Attend clinic at least one day per week with one of the spine attendings.

- e. Take overnight call. The chief resident will help the junior resident(s) formulate a treatment plan for spine patients who are admitted. The responsible spine attending will be made aware of all spine admissions and will confirm the treatment plan initiated by the resident team.
- f. Attend all University campus teaching conferences including Grand Rounds, Morbidity/Mortality, and Core Curriculum. The attending will start surgical cases that begin during conferences.
- g. Plan and attend the spine indications conference at the memorial campus. The senior level resident is expected to pick appropriate cases to present and assign the junior resident to present the case(s). The senior level resident should also find salient literature for the case and distribute this as reading in preparation for the conference.
- h. Plan at least one spine journal club during the rotation and pick the articles from recent literature
- i. Comply with Massachusetts State Health Department Code Regulations and RRC guidelines regarding resident work hours. The resident should arrange for proper and thorough transfer of inpatient care when he/she must leave the hospital.

MPS 7/2/2014