

Spine Division

7. Rotation Goals and Objectives by Core Competency

General Goals & Objectives PGY-2 Year

A. Patient Care

- 1) Learn the essentials of completing a history and physical examination of the spine patient.
- 2) Learn the appropriate plain radiographs to order for the evaluation of spine patients.
- 3) Learn to read and interpret plain radiographs as they pertain to cervical, thoracic and lumbar trauma.
- 4) Cervical, thoracic and lumbar degenerative conditions and adult deformity.
- 5) Recognize the signs and symptoms associated with spinal emergencies of cauda equina syndrome epidural hematoma and neurologic spinal compromise.
- 6) Know the evaluation strategy for the patient with spinal trauma.
- 7) Demonstrate competence of basic operating room skills:
 - a. Positioning to avoid injury, prepping and draping
 - b. The orthopedic exposure to the spine and related anatomy
 - c. Layer closure
 - d. Proper placement of pedicle screws and lateral mass screws
 - e. Demonstrate basic proficiency in the use of Kerrison punches and LeKSELL ronguers
- 8) Demonstrate the ability to care for patients postoperatively:
 - a. Wound care
 - b. Antibiotic prophylaxis
 - c. Anticoagulation management
 - d. Pain management
 - e. Neurologic evaluation
- 9) Consistently perform the surgical time out prior to incision, and ensure appropriate marking prior to surgery.
- 10) Demonstrate knowledge of spinal orthotics including all types of cervical collars, TLSO type braces, Jewett braces and their appropriate indication and usage.
- 11) Report medical errors to the attending surgeon when recognized.
- 12) Organize and supervise the medical students and paramedical staff in the daily care of the service patients.

- 13) Develop patient management and discharge plans for patients admitted directly to the hospital.

B. Interpersonal and Communication Skills

- 1) Able to listen to patients concerns and express sensitivity and empathy for their medical problems.
- 2) Explain the risks and goals of surgery to patients and their families and alternatives to surgery (perform informed consent).
- 3) Establish an effective patient-doctor relationship – attire, grooming, manner of speech, concern, and commitment.
- 4) Establish an appropriate level of communication and relationship with ancillary staff:
 - a. Refrain from abusive behavior
 - b. Be courteous
 - c. Report Staff who are disrespectful and do their duties in a less than satisfactory manner
- 5) Be able to use legible handwriting and print one's name under all signatures.
- 6) Date and time all notes.
- 7) Dictate final update of discharge summaries on the day of discharge.
- 8) Answer patient telephone calls on the same day that they are received.

C. Professionalism

- 1) Sensitive and responsive to differences in culture, gender, age, and impairments of both patients and staff.
- 2) Sensitive to the needs of spine patients in terms of emotional support.
- 3) Reliable in the performance of responsibilities.
- 4) Respectful of the opinions of other healthcare professionals.
- 5) Ability to express opinions in a manner that is sensitive to others.

D. Medical Knowledge

- 1) Knowledge of the basic anatomy of the spine and the extremities.
- 2) Working knowledge of common orthopaedic emergencies with a specific emphasis on spine.
 - a. Cauda equine syndrome
 - b. DVT and PE
 - c. Epidural hematoma

- 3) Working knowledge of cervical and lumbar spinal stenosis, cervical and lumbar radiculopathy, and spinal deformity.
- 4) Working knowledge of basic spinal implants.
- 5) Ability to apply knowledge base in the care of patients.

E. Practice Based Learning and Improvement

- 1) Ability to analyze the effectiveness of his or her own interpretative, problem solving, and surgical skills.
- 2) Ability to use available information technology to obtain and manage information.
- 3) Receptive to constructive criticism.

F. Systems-Based Practice

- 1) Demonstrate ability to provide cost effective care:
 - a) Utilization of appropriate diagnostic tests
 - b) Appropriate use of antibiotics
 - c) Appropriate timing and indications for discharge to home and step down units (rehabilitation and nursing home)
- 2) Utilization of the health care system to provide optimal patient care outside the hospital system.
- 3) Ability to fully utilize the chain of command in both the supervision of subordinates and the interaction with seniors.
- 4) Ability to recognize emergencies and communicate the problem to appropriate personnel.

General Goals & Objectives PGY-3 Year

A. Patient Care

- 1) Continue to refine skills and ability to complete a history and physical examination of the spine patient.
- 2) Learn the principle of ordering and interpreting additional diagnostic studies; CT, CT myelograms, MRI and EMG/NCV.
- 3) Formulate a differential diagnosis of a patient with spinal disorders such as low back pain, spinal stenosis, cervical and lumbar radiculopathy, scoliosis and kyphosis.
- 4) Recognize and formulate an initial treatment plan for orthopaedic spine trauma.
- 5) Recognize and formulate an initial treatment plan for the orthopaedic emergencies of cauda equina syndrome epidural hematoma, sepsis, and neurologic compromise.

- 6) Know the indications for surgical treatment of spinal stenosis, cervical and lumbar radiculopathy, spinal deformity, and spinal trauma.
- 7) Know the historical and current treatment of cervical and lumbar degenerative conditions, trauma and adult deformity.
- 8) Know basic spinal osteotomies.
- 9) Demonstrate technical competence in the operation room:
 - a. Techniques for spinal decompression: cervical discectomy, lumbar discectomy, cervical and lumbar laminectomy
 - b. Identification of intraoperative spinal level
 - c. Correlation of radiographic pathology to intraoperative findings
 - d. Perform anterior transperitoneal and retroperitoneal exposure with assistance
 - e. Perform Smith Peterson osteotomies
 - f. Perform placement of anterior cervical interbody grafts and anterior cervical plates and screws
 - g. Perform cervical discectomy, central laminectomy with assistance
- 10) Demonstrate the ability to care for patients postoperatively:
 - a. Evaluate post operative wounds and determine appropriate time for suture removal
 - b. Coordinate appropriate additional consultation needs when appropriate
 - c. Anticoagulation management
 - d. Advance Antibiotic management
 - e. Neurologic evaluation
 - f. Pain management
- 11) Consistently perform the surgical time out prior to incision.
- 12) Report medical errors to the attending surgeon when recognized.
- 13) Organize and supervise the medical students, junior resident, fellows and paramedical staff in the daily care of the service patients.
- 14) Coordinate and evaluate in-patient spine consultations and present to on-call attending.
- 15) Develop patient management plan for patients admitted directly to the hospital.

B. Interpersonal and Communication Skills

- 1) Able to listen to patients concerns and express sensitivity and empathy for their medical problems.
- 2) Explain the risks and goals of surgery to patients and their families and alternatives to surgery (perform informed consent).
- 3) Establish an effective patient-doctor relationship – attire, grooming, manner of speech, concern, and commitment.

- 4) Establish an appropriate level of communication and relationship with ancillary staff:
 - a. Refrain from abusive behavior
 - b. Be courteous
 - c. Report staff who are disrespectful and do their duties in a less than satisfactory manner
- 5) Be able to use legible handwriting and print one's name under all signatures.
- 6) Date and time all notes.
- 7) Dictate final update of discharge summaries on the day of discharge.
- 8) Answer patient telephone calls on the same day that they are received.

C. Professionalism:

- 1) Sensitive and responsive to differences in culture, gender, age, and impairments of both patients and staff.
- 2) Sensitive to the needs of cancer patients in terms of emotional support.
- 3) Reliable in the performance of responsibilities.
- 4) Respectful of the opinions of other healthcare professionals.
- 5) Ability to express opinions in a manner that is sensitive to others.

D. Medical Knowledge

- 1) Firm knowledge of the functional and surgical anatomy of the spine and extremities.
- 2) Working knowledge and ability to formulate an initial treatment for common orthopaedic emergencies with an emphasis on spine.
 - a. Compartment syndrome
 - b. Cauda equine syndrome
 - c. Spinal trauma
 - d. Epidural hematoma
 - e. Sepsis
 - f. PE/DVT
 - g. Post operative wound infections.
 - h. Presentation, and radiographic features of cervical and lumbar spinal stenosis, cervical and lumbar radiculopathy, and spinal deformity
- 3) Working knowledge of the work-up and the non-operative treatment of cervical and lumbar radiculopathy and myelopathy, and adult deformity.
- 4) The operative indications and appropriate procedure for cervical and lumbar radiculopathy, myelopathy and adult deformity.
- 5) The proper clinical and imaging work-up for spinal trauma.
- 6) The appropriate use of spinal orthotics and braces.

- 7) The operative indications and treatment algorithm for cervical, thoracic and lumbar trauma with an emphasis on:
 - a. Odontoid fracture
 - b. Cervical/ Lumbar facet fractures
 - c. Osteoporotic compression fracture
 - d. Thoracic and Lumbar Burst fractures.

E. Practice Based Learning and Improvement

- 1) Ability to analyze the effectiveness of his or her own interpretative, problem solving, and surgical skills.
- 2) Ability to use available information technology to obtain and manage information.
- 3) Receptive to constructive criticism.

F. Systems-Based Practice

- 1) Demonstrate ability to provide cost effective care:
 - a) Utilization of appropriate diagnostic tests
 - b) Appropriate use of antibiotics
 - c) Appropriate timing and indications for discharge to home and step down units (rehabilitation and nursing home)
- 2) Utilization of the health care system to provide optimal patient care outside the hospital system.
- 3) Ability to fully utilize the chain of command in both the supervision of subordinates and the interaction with seniors.
- 4) Ability to recognize emergencies and communicate the problem to appropriate personnel.

1. Resident Supervision (Spine Division)

The resident assigned to the Spine Division at the Johns Hopkins Hospital Main Campus are valued members of the spine team. Patient safety, open communication and team work are considered to be critical features of the Orthopaedic Spine Service. Everyone is willing to help each other to maximize patient safety and provide the best patient care possible. All house staff, fellows, PAs and NPs should feel comfortable calling the patient's attending or any of the Spine faculty if that attending is not available. Residents act under the direct supervision of the attending spine staff. Resident daily activities are supervised by the attending staff.

Daily Rounds

Morning rounds will be performed that will include a careful physical examination and observation of incision or postop dressings if they have not yet been changed before the OR by the residents and fellows together on all of the inpatients. A progress note will be written at that time. Any changes in neurologic status or medical condition will be immediately

communicated by phone to the attending or the covering attending. Communication of patient status with the attending can be performed verbally during am attending rounds or by phone if the attending does not attend attending rounds. Review of patient status will be performed with Alice Armour, PA on her arrival in the am.

Afternoon rounds will be performed by a resident and/or fellow. Review of patient status with Alice Armour, PA will also be performed before she leaves for the day.

Consults

Consults are the responsibility of the Spine Fellows under the supervision of the attending designated as the Spine Attending for that day. Spine service residents may be asked to assist in the initial evaluation.

Operating Room

An attending will be present for the time out and present or immediately available for all critical portions of the case.

Contact Information:

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3. Clinical Activities

Daily Rounds

Morning rounds will be performed that will include a careful physical examination and observation of incision or postop dressings if they have not yet been changed before the OR by the residents and fellows together on all of the inpatients. A progress note will be written at that time. Any changes in neurologic status or medical condition will be immediately communicated by phone to the attending or the covering attending.

Communication of patient status with the attending can be performed verbally during 7:00 am attending rounds or by phone if the attending does not attend attending rounds. Review of patient status will be performed with Alice Armour, PA on her arrival in the am.

Afternoon rounds will be performed by a resident and/or fellow. Review of patient status with Alice Armour, PA will also be performed before she leaves for the day.

Consults

Consults are the responsibility of the residents in conjunction with the spine fellows under the supervision of the attending designated as the Spine Attending for that day.

Operating Room

A minimum of three days a week should be spent in the operating room. Residents are welcome and encouraged to participate in any surgery on the Spine Service for all part of the case as their didactic and call schedules allow. When On Call residents are encouraged to scrub in as time allows and will be notified of key moments of cases in order to maximize their learning during the rotation.

Clinic

A minimum of 1 day a week should be spent in clinic. Residents are welcomed and encouraged to participate in any clinic on the Spine Service as their didactic and call schedules allow. On Call residents are encouraged to participate in clinic as time allows and will be notified of interesting cases, physical findings and radiographs in order to maximize their learning during the rotation.

4. Required Readings

Textbook

Orthopaedic Surgery Essentials: Spine Bono CM and Garfin SR eds. Lippincott Williams and Wilkins– Weekly chapter readings and Tuesday 7 am.

Journal Articles

Topical articles provided by the Spine fellows on a weekly basis. Specific articles are assigned to residents weekly for them to present to the spine faculty during Spine Journal Club (Wednesday 7 am).

Required reading and Didactic Schedule:

- Week 1: Physical Exam of the Spine: Bono Chapter 1
- Week 2: Spinal Imaging: Bono Chapter 14,28
- Week 3: Cervical Trauma: Bono Chapter 35
Spinal cord injury and paralysis: Bono Chapter 58
- Week 4: Thoracic and Lumbar trauma: Bono Chapter 45
Spinal Injuries in sports: Bono Chapter 36
- Week 5: Pyogenic Infections: Bono Chapter 73
Atypical Spine Infections: Bono Chapter 81
- Week 6: Primary Benign Tumors: Bono Chapter 88
Primary Malignant Tumors: Bono Chapter 92
Metastatic disease: Bono Chapter 97
- Week 7: Cervical Spondylosis and Stenosis: Bono Chapter 109
Cervical radiculopathy: Bono Chapter 114
- Week 8: Thoracic spondylosis, stenosis: Bono Chapter 122
Lumbar stenosis, disc herniation: Bono Chapter 132
discogenic back pain: Bono Chapter 142,146
- Week 9: Deformity: Bono Chapter 156,163,175
- Week 10: Inflammatory spondyloarthritis: Bono Chapter 188,196
Osteoporosis: Bono Chapter 206

5. Didactic Activities

Monday	Combined Neurosurgery/Ortho Spine Conference – 1 st Monday 5pm
Tuesday	Bono Text Review with Dr Kebaish/Neubauer 7 am – 8 am
Wednesday	Spine Journal Club with spine faculty and fellows 7am – 8am
Thursday	Departmental Grand Rounds 7am – 8 am M&M Departmental Didactics Conference 8am to 12 am
Friday	Spine Indications Conference 6:30 am to 7:30 am

6. Schedule

Monday

OR Kebaish GOR 11 8am to 6pm

or

Clinic Riley (GSS 215) or Cohen/Neubauer (JHOC 5) 8am to 4pm

Combined Neurosurgery/Ortho Spine Conference (Meyer 1) – 1st Monday 5pm – 6pm

Tuesday

Bono Text Review with Dr Kebaish 7am – 8am

OR Riley GOR 6 or Kebaish GOR 11 8am - 6pm

or

Clinic Cohen (GSS 215) or Neubauer (WM)

Wednesday

Spine Journal Club with spine faculty and fellows 7am – 8am

OR Riley GOR 11 8am-6pm

or

OR JHOC Cohen/Neubauer 8am-1pm

or

Clinic Kebaish (JHOC 5) 8 am – 4pm

Thursday

Departmental Grand Rounds 7am – 8 am

M&M

Departmental Didactics Conference 8am to 12 am

OR Riley GOR 7 or Cohen GOR11

or

Clinic Kebaish (JHOC5) 9am -2pm

Friday

Spine Indications Conference 6:30 am to 7:30 am

OR Cohen GOR 11 or Neubauer GOR 7 8am – 6pm

or

Clinic Riley (JHOC) 9am – 4pm