

NEUROSURGERY

CanMEDS roles and responsibilities

GENERAL OBJECTIVES

Upon completion of a rotation on the Neurosurgery Service, the learner must demonstrate knowledge of the etiology of disease and injury of the Spine, and be able to formulate a differential diagnosis. Knowledge of the diagnosis and emergent management of a brain-injured patient is also required. A knowledge base must exist to formulate a plan to effectively and efficiently order investigations to arrive at a diagnosis and formulate a treatment plan. The learner should be able to communicate the diagnosis/treatment plan to the patient/family, especially as it relates to establishing a sympathetic and effective professional relationship. These objectives apply both in the acute setting of trauma in the Emergency Department and in chronic conditions most commonly seen in the outpatient department.

SPECIFIC OBJECTIVES

At the completion of the rotation, the learner will have acquired the following competencies and will function effectively as:

I. MEDICAL EXPERT/CLINICAL DECISION MAKER

While working on the Neurosurgery service, a learner must become proficient in the following areas:

1. Assessment of the patient with back pain
2. Knowledge of the non-operative treatment modalities available for the patient with non-surgical back pain and their indications/contraindication/limitations/expectations
3. Knowledge of the rehabilitation of the patient with a spinal cord injury.
4. Have the ability to liaison with other members of the spinal rehabilitation team.
5. Knowledge of the appropriate referrals to initiate on the spinal cord injured patient
6. C-Spine
 - a. Obtain an efficient and relevant history and perform a physical examination of the spinal patient
 - b. Appropriately utilize investigative modalities
 - i. Plain radiographs
 - ii. Myelograms
 - iii. CT
 - iv. MRI
 - c. Knowledge of the radiographic and clinical criteria to assess the stability of a C-spine Fracture
 - d. Knowledge of the assessment and initial management with a spinal cord injury
 - e. Surgical and Pharmacologic
 - f. Knowledge of indications/contraindications/types of instrumentation available for surgical treatment of the C-spine
 - g. Knowledge of non-operative means to treat C-spine injuries
 - i. Application of a Halo vest
 - ii. Application of Tongs
 - iii. Application of Collars
 - h. Understand the relevant anatomy, pathophysiology, and treatment of the following clinical entities:
 - i. Traumatic
 1. Occipital Condyle Fractures
 2. Occipitoatlantal dislocation

3. Atlas Fractures
4. Transverse Ligament Ruptures
5. Atlantoaxial Rotatory Subluxation
6. Fractures of the Odontoid Process
7. Traumatic Spondylolysis of the Axis (Hangman's Fracture)
8. C3-C7 Fracture/dislocations
 - ii. Acquired/Congenital
 1. Knowledge of all primary and metastatic malignancy of the C-Spine
 2. Knowledge of all primary and secondary infective processes of the C-spine
 3. Knowledge of all congenital deformities
 - A. Instability
 - B. Scoliosis
 - C. Kyphosis
 4. Knowledge of systemic disease that has C-spine involvement
 - A. Ankylosing spondylitis
 - B. Rheumatoid arthritis
 5. Knowledge of Degenerative Disc Disease
 - A. Radiculopathy and myelopathy
 - B. Disc herniation and spinal stenosis
 6. Knowledge of soft tissue injuries to the C-spine
 7. Thoracic and Lumbar Spine
 - a. Obtain an efficient and relevant history and perform a physical examination of the spinal patient
 - b. Appropriately utilize investigative modalities
 - i. Plain radiographs
 - ii. Myelograms
 - iii. CT
 - iv. MRI
 - c. Knowledge of the radiographic and clinical criteria to assess the stability of a T or L-spine Fracture
 - d. Knowledge of the assessment and initial management with a spinal cord injury
 - e. Surgical and Pharmacologic
 - f. Knowledge of indications/contraindications/types of instrumentation available for surgical treatment of the T and L-spine
 - g. Knowledge of non-operative means to treat T or L-spine injuries
 - i. Application of a cast
 - ii. Application of braces (indications and types)
 - h. Understand the relevant anatomy, pathophysiology, and treatment of the following clinical entities:
 - i. Traumatic
 1. Fractures and dislocations
 - A. Compression
 - B. Burst
 - C. Flexion distraction
 - D. Fracture/dislocations
 - ii. Acquired/Congenital
 1. Knowledge of all primary and metastatic malignancy of the T and L-Spine
 2. Knowledge of all primary and secondary infective processes of the T and L-spine

3. Knowledge of all Congenital deformities
 - A. Instability
 - B. Scoliosis
 - C. Kyphosis
4. Knowledge of systemic disease that has T and L-spine involvement
 - A. Ankylosing Spondylitis
 - B. Rheumatoid Arthritis
5. Knowledge of Degenerative Disc Disease
 - A. Radiculopathy and Myelopathy
 - B. Disc herniation and Spinal Stenosis
 - C. Knowledge of Soft Tissue Injuries to the L-spine
 - D. Knowledge of Spondylolithesis
8. CNS/Brain injured patient
 - a. Knowledge of the diagnosis and emergency management of a patient with a traumatic brain injury
 - b. Knowledge of the diagnosis and treatment of MSK problems associated with traumatic brain injury
 - c. Joint weakness and contracture
 - d. Myositis ossificans

II. COMMUNICATOR

General Requirements

1. Establish therapeutic relationships with patients/families
2. Obtain and synthesize relevant history from patients/families/communities
3. Listen effectively
4. Discuss appropriate information with patients/families and the health care team

Specific Requirements

1. Effectively communicate with patients/families and members of the team
2. Effectively communicate important aspects of patient care to the multidisciplinary team and clearly/concisely summarize the patient care plan
3. Understand and empathize with the emotion surrounding injury
4. Appreciate the dynamics of a traumatized family
5. Address patients' concerns with empathy
6. Understand the concerns that patients have with loss of control, self worth and personal dignity
7. Explain details of the injury and therapy in understandable terms
8. Appreciate the fact that interpreters may be required for ethnic groups

III. COLLABORATOR

General Requirements

1. Consult effectively with other physicians and health care professionals
2. Contribute effectively to other interdisciplinary team activities

Specific Requirements

1. Understand the roles of other health care professionals
2. Seek the advice of other members of the health care team
3. Organize/lead team meetings to discuss problems in investigation/therapy (multidisciplinary conference)
4. Consult regularly and reasonably with other physicians and members of the health care team
5. Share knowledge effectively to formulate a health care plan

IV. LEADER

General Requirements

1. Utilize resources effectively to balance patient care, learning needs and outside activities
2. Allocate finite health care resources wisely
3. Work effectively and efficiently in a health care organization
4. Utilize information technology to optimize patient care, life-long learning and other activities

Specific Requirements

1. Participate effectively in resource planning for the spinal and brain injury patient
2. Participate in discharge planning

V. HEALTH ADVOCATE

General Requirements

1. Identify the important determinants of health affecting patients
2. Contribute effectively to improve the health of patients, their families and communities
3. Recognize and respond to those issues where advocacy is appropriate

Specific Requirements

1. Demonstrate knowledge of the epidemiology of spinal problems and traumatic brain injury
2. Advise patients/families of the role of environmental factors in spinal disease
3. Promote prevention of spine and spinal cord injury
4. Outline community resources available to patients/families dealing with spinal problems:
 - a. Social work
 - b. Physiotherapy
 - c. occupational therapy
 - d. dietary/nutritional services
 - e. prosthetic support services
 - f. pain and symptom management
 - g. palliative care

VI. SCHOLAR

General Requirements

1. Develop, implement and monitor a personal continuing education strategy
2. Critically appraise sources of medical information
3. Facilitate learning of patients, housestaff and other health professionals

4. Contribute to development of new knowledge

Specific Requirements

1. Question current practice
2. Develop a teaching contract that reflects the multidisciplinary approach to orthopedic surgery
3. Critically assess the orthopedic literature as it pertains to diagnosis, investigation, treatment and follow up:
 - a. outline types of trial design
 - b. define the relevance of statistical significance and how it is determined
 - c. define type I and type II errors and their relevance
4. Disseminate relevant knowledge to other health care providers

VII. PROFESSIONAL

General Requirements

1. Deliver the highest quality care with integrity, honesty and compassion
2. Exhibit appropriate personal and interpersonal professional behavior
3. Practice medicine ethically consistent with the obligations of a physician

Specific Requirements

1. Understand that professionalism requires ongoing CME
2. Maintain a professional attitude consistent with a practicing orthopedic surgeon
3. Sympathize with the needs of the patient even when they conflict with medical advice
4. Recognize the requirement of patient confidentiality
5. Understand ethical responsibilities as they relate to the orthopedic patient
6. Practice in an ethical, honest and forthright manner
7. Respond to conflict constructively and with compassion