SPINAL CORD INJURY

OBJECTIVES

Patient Care:

The resident will be expected to:

- Admit as the primary care provider all acute and some chronic spinal cord injury (SCI) inpatients. Residents are responsible for all administrative care related to their patient including but not limited to:
  - Daily progress notes, discharge summaries, team rounds summaries, daily patient medication orders, comprehensive therapy orders, family conference summaries

- Diagnose physical, cognitive, and psychosocial impairments in rehabilitation patients with spinal cord injuries.

- Perform a comprehensive musculoskeletal and neurological examination and ASIA examination on selected patients.

- Perform daily examinations on SCI inpatients to prevent medical complications.

- Create a differential diagnosis appropriate to the physical findings.

- Perform tracheobronchial suctioning of a patient with tracheotomy tube.

- Prescribe and understand how a paraplegic and tetraplegic person performs a bed-to-wheelchair transfer.

- Assist a tetraplegic person with rolling from side to side.

- Attend a urodynamic study of a patient.

- Alter bladder management of a person with SCI based on urodynamic data.

- Decide when a ventilator-dependent spinal cord injured individual is weanable, and defend your decision utilizing various clinical factors including level of injury, completeness of injury, and measurements of respiratory function.

- Develop a wound care management plan for a patient with pressure ulcers.

- Debride pressure ulcers competently; gain authorization to perform without supervision.
• Assist a tetraplegic person in mat-to-wheelchair transfer, with the supervision of a rehabilitation professional.

• Correctly perform a rectal examination of a spinal cord injured individual, including assessment of reflex function, sensation, and voluntary motor function.

• Recommend appropriate inpatient and outpatient rehabilitation plans based upon the level of spinal cord injury and co-morbid conditions.

• Learn to order appropriate diagnostic tests and interpret the findings of the ordered tests.

• Be knowledgeable about the different types of wheelchair seating, positioning, and orthotics to maximize functional activity.

**Medical Knowledge:**

The residents will be expected to:

• Report trends in epidemiology of SCI concerning:
  o Incidence and prevalence
  o Age at injury
  o Gender and ethnicity
  o Etiology
  o Life expectancy and causes of death
  o Associated injuries

• Apply learned anatomy and physiology as appropriate.

• On various radiographic studies of the spine, identify:
  o vertebral body, posterior elements
  o the spinal canal and cord
  o intervertebral discs
  o facet joints
  o locations of important ligaments

• Describe current pharmacologic treatment for acute spinal cord injury.

• Identify reasons for surgical treatment of acute spinal injuries.

• Define spasticity. Describe the Ashworth scale.
• Know the tracts of the spinal cord (neuroanatomy). Become familiar and comfortable with using ASIA classification including recognized spinal cord injury syndromes.

• Describe the risk factors of pressure ulceration, prevention procedures, the international classification, and the management principles of ulcerations.

• Identify and treat specific disorders that are commonly seen in the SCI population setting, including but not limited to:
  o Autonomic dysreflexia, DVT and prophylaxis, decubiti, stress ulcers, pneumonia, UTI, ileus, heterotopic ossification, spasticity, depression, neurogenic bowel/bladder, pulmonary/cardiac/GI complications, sexual dysfunction, metabolic changes, obstructive uropathy with and without stones, infertility, and ejaculatory dysfunction

• Design a bowel routine for the spinal cord injured individual with:
  o Upper motor neuron bowel
  o Lower motor neuron bowel

• Identify and manage depression and adjustment disorder with psychological assistance.

• Describe the pathophysiology of autonomic dysreflexia.

• Describe non-pharmacologic and pharmacologic treatment for autonomic dysreflexia.

• Understand the kinesiology of upper extremity function and the use of muscle substitution patterns in retraining.

• Describe the indications and contraindications of muscle and tendon transfers and other operative procedures to enhance function.

• Identify the indications and usage of functional electrical stimulation (FES) in SCI.

• Evaluate and manage outpatient SCI patients with: joint pain, spinal pain, entrapment neuropathies, renal stones, UTI, contractures, spasticity, depression, neuropathic and central pain, respiratory illness, cholesterol disorders, metabolic issues:
  o Learn the physiology and basic science behind these disorders
  o Determine appropriate goals for patients with specific levels and degrees of SCI
  o Learn the complications of a patient aging with SCI as it applies to inpatient admission and severe illness and outpatient care
  o Learn physiology of respiratory disorders associated with SCI
o Apply assistive technology to the patient in the appropriate manner for level of SCI
o Create a wheelchair prescription for a SCI patient
o Write appropriately therapy orders for the SCI patients

**Practice-Based Learning and Improvement:**

Residents are expected to:

- Evaluate their own exam skills and knowledge and incorporate feedback from others.
- Investigate and apply evidence from scientific studies to enhance patient care throughout the rotation.
- Use information technology (computers, journals, etc.) to access and manage patient information and support their own education and treatment decisions.
- Participate in Mortality and Morbidity conference in a manner that critiques and evaluates your own performance and identifies key learning points.
- Facilitate the education of junior residents and medical students who rotate on the SCI unit.
- Attend and participate in conferences and rounds.
- Provide in-service talks to allied health personnel.
- Investigate the outcomes of their treatment decisions.

**Interpersonal and Communication Skills:**

Residents are expected to:

- Elicit information using effective questioning and listening skills.
- Demonstrate caring and respectful behaviors (verbal and non-verbal) with patients.
- Establish trust and maintain rapport with patients and family.
- Complete all chart notes and dictations in a timely manner.
- Present material clearly and accurately to patients and family.
• Regularly visit the therapy areas to observe patients engaged in restorative activities.

• Effectively communicate patient needs, verbally and in writing, to all multidisciplinary staff and other physicians involved with the patient.

• Prescription writing: write inpatient therapy orders and prescribe home health or outpatient prescriptions that include the following essential elements: diagnosis, parts to be treated, procedures to be used with specifications of techniques and time, special instructions or precautions, home instructions for the patient, and number and frequency of treatments.

• Utilize effective listening skills.

• Participate in all relevant rounds and discussions.

• Participate and eventually lead multidisciplinary rounds and family conferences.

• Present their findings clearly and concisely to supervising faculty so that management can be discussed.

**Professionalism:**

Residents are expected to:

• Show leadership and become proficient at organizing and leading a family meeting.

• Lead a multidisciplinary team in the care of SCI patients.

• Exemplify respect and compassion towards patients.

• Show reliability, punctuality, integrity, and honesty.

• Accept responsibility for own actions and decisions.

• Apply sound ethical principles in practice, including patient confidentiality, informed consent, provision and withholding of care, and interactions with insurance or disability agencies.

• Complete all required chart documentation including admission notes, progress notes and discharge summaries, admission and discharge ASIA exams.

• Consider the effects of personal, social, or cultural factors in the disease process and patient management.
• Demonstrate sensitivity to the patients who have different ages, social status, races, and genders.

**System-Based Practice:**

Residents are expected to:

• Gain knowledge about vocational rehabilitation and community resources for persons with spinal cord injury and musculoskeletal injuries.

• Collaborate and work effectively with other health professionals and maintain appropriate behaviors.

• Assess how their decisions affect others – patients, family, other health care professionals.

• Integrate care of patients across hospital and community settings.

• Recognize when tests are appropriate or may be under- or over-utilized.

• Understand the cost of the treatments and diagnostic tests that are ordered.

• Describe the relevance and utility of the *Functional Independence Measure (FIM).*

• Gain familiarity and participate in completion of the Inpatient Rehabilitation Facility Patient Assessment instrument (IRF-PAI), including identification of impairment codes and co-morbidities.

• Understand which physicians are involved in the treatment of patients with disabilities and what their role is.

• Advocate for patients who need tests and treatments that might be inappropriately denied.

• Describe Medicare and Medicaid requirements as it relates to documentation, elements of the exam, billing procedures, and codes.

• Realize limitations on the ability of patients to pay for their medications, therapies, or equipment.