

## **FOOT AND ANKLE**

### **CanMEDS roles and responsibilities**

#### **GENERAL OBJECTIVES**

Upon completion of a rotation on the Foot and Ankle Service, the learner must demonstrate knowledge of the etiology of disease and injury of the Foot and Ankle, and able to formulate a differential diagnosis. 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 Foot and Ankle service, a learner must become proficient in the following areas:

1. Obtain appropriate history and perform physical examination and be competent in assessing the following:
  - a. Rudimentary abnormalities of gait (e.g. antalgic gait).
  - b. Recognize and describe foot and ankle deformities.
  - c. Differentiate between normal and abnormal joint arc of motion.
  - d. Soft tissue contractures of the Achilles tendon, subtalar joint complex and midfoot.
  - e. Grade of strength of the extrinsic and intrinsic foot and ankle muscles.
  - f. Neurovascular status of the foot.
  - g. Instability of the ankle and MTP joints.
  - h. Location of pain and defining the pathology producing the pain.
  - i. Grades and types of ulcers based on depth and location.
2. Describe, order and interpret the plain radiographs for foot and ankle conditions and be knowledgeable in the following:
  - a. Radiographic characteristics of ankle, hind foot, midfoot, and forefoot deformities.
  - b. Classification of ankle, hind foot, midfoot, and forefoot arthritis.
  - c. Classification of ankle, talar, calcaneal, and midfoot fractures.
  - d. Specialized views for common pathologies (e.g. calcaneonavicular coalition, subtalar pathology, hind foot alignment views).
  - e. Appropriate use of further diagnostic imaging (CT scan, MRI, bone scan and gallium scans).
3. Establish a differential diagnosis based on the knowledge of the foot and ankle anatomy, biomechanics and physiology.
4. Describe the appropriate role of further investigations, such as a CT scan, MRI, bone scans, and local anesthetic blocks.
5. Describe a non-operative treatment program, i.e. the role of regular and custom-made orthotics and shoe modifications, and write prescriptions for braces and orthotics.
6. Prescribe appropriate diabetic footwear.
7. Describe the surgical approaches for reconstruction and trauma.

8. Describe a management plan (investigations, non-operative and operative) for the following pathology:
- a. Foot and ankle arthritis
    - i. Ankle
    - ii. Subtalar joint complex
    - iii. Tarsometatarsal joints
    - iv. Hallux rigidus (1st MTP joint)
    - v. Freiberg's infraction
    - vi. Sesamoiditis
  - b. Foot and ankle trauma
    - i. Ankle fractures
    - ii. Talar fractures
    - iii. Calcaneal fractures
    - iv. Lisfranc fracture dislocation
    - v. Metatarsal fractures
    - vi. Compartment syndrome
    - vii. Stress fractures
    - viii. Osteochondral fractures of talus
  - c. Deformity
    - i. Symptomatic flat foot
    - ii. Cavus foot deformity
    - iii. Tarsal coalition
    - iv. Hallux valgus
    - v. Lesser toe deformities (claw and hammer toes)
  - d. Foot and ankle tendon and ligament pathology
    - i. Acute/delayed Achilles tendon ruptures
    - ii. Achilles tendonitis
    - iii. Peroneal tendonitis
    - iv. Posterior tibial tendon dysfunction
    - v. Plantar fasciitis
    - vi. Ankle ligament reconstruction
  - e. Rheumatoid arthritis
    - i. Ankle, hindfoot, and midfoot
    - ii. Forefoot deformities
  - f. Diabetic foot and ankle disorders
    - i. Infection
    - ii. Ulcer
    - iii. Charcot arthropathy
  - g. Foot and ankle nerve disorders
    - i. Reflex sympathetic dystrophy/complex regional pain syndrome
    - ii. Tarsal tunnel syndrome
    - iii. Morton's neuroma
    - iv. Drop foot
    - v. Peripheral neuropathy
  - h. Foot and ankle tumours
    - i. Approach to malignant tumors
    - ii. Approach to benign tumours

9. Describe surgical indications, obtain preoperative imaging, obtain informed consent, describe patient positioning, surgical approach, surgical anatomy, fixation techniques (if applicable), intra-operative imaging, wound closure, and postoperative management for the following procedures:

- a. Ankle procedures
  - i. Ankle arthroscopy (anterior impingement, osteochondral lesions, ankle cheilectomy)
  - ii. Ankle cheilectomy
  - iii. Ankle arthrodesis
  - iv. Ankle ligament reconstruction
  - v. Tendo-achilles lengthening
  - vi. Repair of acute/delayed Achilles tendon ruptures
  - vii. Achilles tendonitis debridement and reconstruction
  - viii. Tarsal tunnel release
- b. Hindfoot procedures
  - i. Calcaneal osteotomy (medial or lateral)
  - ii. Subtalar arthrodesis
  - iii. Triple arthrodesis
- c. Midfoot procedures
  - i. Midfoot fusion
  - ii. Midfoot osteotomy
- d. Forefoot procedures
  - i. Proximal and distal metatarsal osteotomies for hallux valgus
  - ii. Rheumatoid arthritis forefoot reconstruction
  - iii. Correction of claw and hammer toes
  - iv. 1st MTP joint cheilectomy
  - v. 1st MTP joint arthrodesis
  - vi. Excision of Morton's neuroma
- e. Fracture fixation
  - i. Ankle
  - ii. Talus
  - iii. Calcaneus
  - iv. Lisfranc
  - v. Metatarsal
- f. Diabetic ulcer
  - i. Debridement
  - ii. Exostectomy
  - iii. Reconstruction of Charcot arthropathy
- g. Tendon transfers
  - i. FHL tendon transfer to calcaneus for delayed Achilles tendon reconstruction
  - ii. FDL transfer for posterior tibial tendon dysfunction
  - iii. Posterior tibial tendon transfer for drop foot

10. Diagnose, investigate, and treat the following postoperative complications:

- a. Wound necrosis
- b. Wound infection
- c. Nonunion of an arthrodesis or fracture
- d. Reflex sympathetic dystrophy
- f. Nerve injury
- g. Dysvascular foot after foot and ankle reconstruction
- h. Painful hardware

- i. Compartment syndrome
- j. Postoperative pain

## **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 orthopedic disease and 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 medical condition 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 orthopedic 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 orthopedic disease and injury
2. Advise patients/families of the role of environmental factors in orthopedic disease and injury
3. Promote prevention of orthopedic disease and injury
4. Outline community resources available to patients/families dealing with orthopedic disease and injury:
  - a. Social work
  - b. Physiotherapy
  - c. occupational therapy
  - d. dietary/nutritional services
  - e. prosthetic support services
  - f. pain and symptom management
  - g. palliative care
5. Identify the possibility of non-accidental injury (physical abuse) and make the appropriate referrals to prevent further harm

## **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, house staff 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
4. Define type I and type II errors and their relevance
5. 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