

## **ORTHOPEDIC ONCOLOGY**

### **CanMEDS roles and responsibilities**

#### **GENERAL OBJECTIVES**

Upon completion of a rotation on the Oncology Service, the learner must demonstrate knowledge of the etiology of oncologic disease affecting the musculoskeletal system and be 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 initial diagnosis in the clinic and in chronic conditions relating to malignancy 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 Orthopedic Oncology service, a learner must become proficient in the following areas:

1. Obtain appropriate history and perform physical examination relating to a mass and be competent in assessing the following.
  - a. Relationship of mass to Fascia
  - b. Neurovascular involvement
  - c. Lymphatic involvement
  - d. Sites of metastatic potential for primary MSK tumours
  - e. Organs systems likely to metastasize to the MSK system
  - f. Mass characteristics
2. Describe and understand the difference between different tumour classes and their relationship to differing physiology.
  - a. Primary lesions
    - i. Benign
    - ii. Benign Aggressive
    - iii. Malignant
  - b. Metastatic lesions
3. Describe different primary bone tumour types and to understand the appropriate physiology for each class.
  - a. Chondroid lesions- chondroma, enchondroma, osteochondroma, chondromyxoid fibroma, chondroblastoma, chondrosarcoma
  - b. Osteoid lesions- osteoid osteoma, osteoblastoma, osteoma, osteogenic sarcoma
  - c. Fibrous lesions- fibrous cortical defects, non-ossifying fibroma, fibroma, fibrous dysplasia , fibrosarcoma, malignant fibrous histiocytoma of bone
  - d. Others- unicameral bone cyst, hemangioma, histiocytosis, lipoma, eosinophilic granuloma, giant cell tumour, aneurysmal bone cyst, Ewing's sarcoma, adamantinoma, chordoma, hemangiopericytoma

4. Describe different primary soft tissue tumour types and to understand the appropriate physiology for each class.
  - a. Fibrous lesions- Fibroma, nodular fasciitis, fibromatosis, dermatofibrosarcoma protruberans
  - b. Lipoid lesions- lipoma, hibernoma, angiolipoma
  - c. Muscle- leiomyoma, angiomyoma, rhabdomyosarcoma
  - d. Blood vessel- hemangioma, glomus tumour, hemangiopericytoma
  - e. Nerve lesions- neuroma, neurofibroma, neurofibromatosis, neurosarcoma
  - f. Myositis ossificans, myxoma, giant cell tumour of tendon sheath
5. Describe the investigations appropriate for a MSK tumour.
  - a. Blood work
  - b. X-ray
  - c. CT-scan
  - d. MRI
  - e. Angiography
  - f. Bone/gallium Scanning
6. Formulate a differential diagnosis based on the physical exam and investigations.
7. Describe staging systems of MSK tumours according to the Enneking MSTS system.
8. Describe the appropriate biopsy principles of MSK tumours.
9. Formulate a treatment plan for the different tumour types
  - a. Surgery.....limb sparing vs amputation
  - b. Observation
  - c. Chemotherapy
  - d. Radiation
  - e. Palliative care
10. To formulate treatment plans for complications in MSK oncology surgery.
  - a. Wound necrosis
  - b. Wound infection
  - c. Nonunion or fracture
  - d. Fibrosis
  - e. Reflex sympathetic dystrophy
  - f. Nerve injury
  - g. Dysvascularity after reconstruction
  - h. Painful reconstruction
  - i. Compartment syndrome
  - j. Postoperative pain
  - k. Local recurrence
  - l. Metastases

## **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 role 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 (multi-disciplinary conference)
4. Consult regularly and reasonably with other physicians and members of a health care team
5. Share knowledge effectively to formulate a health care plan

## **IV. LEADER**

### **General knowledge**

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 environment
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, 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