About This Curriculum

- It is the responsibility of both the resident and the attending to go over the goals and guidelines included in this handbook
  - At the beginning of the rotation
  - At the conclusion of the rotation

- Additional materials and/or service handbooks may be provided by the attendings at the beginning of the rotation
The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

Musculoskeletal Oncology Service Information

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Schedule

During the two month rotation, both the PGY-2 and PGY-4 will spend one month each with Dr Mayerson and Dr Scharschmidt. They will switch attendings after the first month.

Dr Mayerson
Monday: OR, beginning at 7:00am
Tuesday: Indications conference at 6:15am in Ortho Library
        Clinic at the James, beginning at 8am
Wednesday: OR, beginning at 7:00am
Thursday: Pathology conference at 7:00am, Clinic at Moorehouse beginning at 9:00am
        Second Thursday will be clinic at Children’s in the am
Friday: Every other Friday will be OR at Children’s. The oncology resident is encouraged to assist when daily conferences are finished.

Dr Scharschmidt
Monday: Clinic at Martha Moorehouse Plaza, beginning at 9am
Tuesday: Indications conference at 6:15am in Ortho Library
        OR, beginning at 7:30am
Wednesday: Clinic at the James, beginning at 9:00 am
Thursday: Pathology conference at 7:00, followed by OR at the main in the am
        Fourth Thursday will be clinic at Children’s in the am
Friday: Every other Friday will be OR at Children’s. The oncology resident is encouraged to assist when daily conferences are finished.
Delineation of Resident Responsibilities:  
Orthopaedic Oncology Service:  PGY2 and PGY4

I.  Resident Responsibilities for Patient Care

- **Rounding**  Residents are expected to have seen and written a complete detailed note on each patient prior to going the OR or clinic for the day. Consult patients will be followed based on acuity to be decided upon discussion between the attending staff and resident. Attending rounds will be done daily at a time to be discussed between the resident and attending staff. Communication is mandatory with the inpatient and outpatient PCRM’s as needed. The P.A. will be used as needed to assist the resident staff with patient care.

- **Orders**  All orders will be done via the CAPI order entry system. There is a specific order set for the oncology service. Please use this set as it has been standardized for most of the post-operative needs for the oncology patients.

- **Preferences**  All dressings should be changed on POD 2 and daily thereafter unless otherwise specified. Drains are left in place and the patient kept on IV antibiotics until output is less then 30cc per 24 hour shift. Weight bearing status and physical therapy orders should be discussed on a case-by-case basis.

- **Discharge**  The standard OSU mechanism of electronic discharge instructions is to be used at all times. This should be a detailed account of the patient’s care so the primary care physician who receives a faxed copy upon the patient’s discharge will understand the plan of care. If you don’t know the detailed plan, please ask. DO NOT DISCHARGE a patient without reviewing all laboratory values and radiographic studies first!

The discharge summary should be done as close as possible to the discharge date. This allows for easier recollection on the part of the resident for complicated patients. The discharge summary must include a complete history, pertinent physical exam, summary of care and reason for hospital admission. Use the EDI for specific follow-up information. This is the only way that rehabilitation hospitals sometimes are able to discern follow-up care.

Please try to have discharge orders written prior to 10 am whenever possible so we can comply with the James Administrative Policy of completing all inpatient discharges prior to noon.
In general most patients are seen post-operatively 10 to 14 days after surgery unless you are told otherwise. Pain medication is unique to each patient and should be discussed with the attending staff if you are unsure. Pain medications should be sufficient for 3-4 weeks.

- **Documentation**: Please make sure daily notes are legible and the detailed care plan for the day is outlined. This will save you many phone calls and will allow the ancillary caregivers to provide better care for the patient as well. Check all laboratory values daily and document the abnormal labs that need addressed in the care of the patient.

Residents are responsible for a thorough pre-operative history and physical exam and as well as a brief OP note describing the procedure. Before the patient leaves the OR, a decision will be made on who will dictate the operative note. Any questions should be directed toward the attending staff.

All consults must document a COMPLETE history including a review of systems, past medical and surgical history, family history, allergies, medicines, and social history. Oncology patients are very complex and this is an important aspect of their evaluation. The attending staffing the consult must be documented and a specific plan generated after discussion with the attending staff.

Many other questions will arise on an as needed basis. Constant communication between all members of the team is the best way to get an optimal educational experience and provide the best care possible for each patient.

**II. Resident Level of Responsibility for Patient Care**

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

**III. Resident Supervision**

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.
IV. Performance Feedback

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
Goals and Objectives
Musculoskeletal Oncology Rotation – PGY2

I. Core Competency Areas

By the end of the PGY2 rotation in Musculoskeletal Oncology, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care
1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge
1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning
1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills
1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism
1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients
Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

By the end of the PGY2 rotation in Musculoskeletal Oncology, the resident should:

1. Understand the natural history, cellular biology, diagnostic imaging modalities utilized in the evaluation, biopsy technique involved in diagnosis and surgical treatment, surgical options available for the palliative treatment of primary bone and soft tissue neoplasms, both benign and malignant.
2. Know the spectrum of benign and malignant neoplastic disease entities and tumor-like conditions encountered in musculoskeletal oncology
3. Know the important aspects of clinical diagnosis used in the evaluation of soft tissue and bone neoplasms
4. Understand the staging systems and the classification of surgical procedures utilized by musculoskeletal oncologists
5. Understand the management of surgical specimens and the approach to their interpretation through light microscopy, immunohistochemistry, and cytogenics.
6. Know the general principles for using adjuvant treatment modalities (radiation therapy and chemotherapy) and the surgical options available for palliative treatment of metastatic malignancies to including the evaluation and treatment of pending and overt pathologic fractures.
7. Understand the psychological aspects of patient management and the techniques for pain management in orthopaedic oncology patients.
8. Know the surgical options available for the palliative treatment of metastatic malignancies to bone including the evaluation and treatment of pending and overt pathologic fractures
9. Identify patient position, surgical approach, and pertinent anatomy for each tumor location
10. Know general surgical technique for bone and soft tissue resections and appropriate margin status
11. Design and implement the appropriate diagnostic approach to bone and soft tissue lesions from the initial office based clinical evaluation of the patient through a utilization of the entire spectrum of diagnostic modalities.
12. Synthesize clinical, radiographic, and pathologic diagnostic information into an appropriate differential diagnosis and a final definitive diagnosis for musculoskeletal lesions

III. Specialty Specific Psychomotor Skills

By the end of the PGY2 rotation in Musculoskeletal Oncology, the resident should be able to:

1. Assist in planning of fine needle aspiration, true-cut needle biopsy, and open surgical biopsy in the management of soft tissue sarcoma. Know how and when each method is optimally utilized.
2. Plan and assist in performing core needle biopsy of bone lesions with fluoroscopic control and open biopsies of both soft tissue and bone tumors in the operating room when appropriate to stage of training.
Goals and Objectives  
Musculoskeletal Oncology Rotation: PGY4

I. Core Competency Areas

By the end of the PGY4 rotation in Musculoskeletal Oncology, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients
Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Specialty Specific Knowledge

Basic:

1. Understand the natural history, cellular biology, diagnostic imaging modalities utilized in the evaluation, biopsy technique involved in diagnosis and surgical treatment, surgical options available for the palliative treatment of primary bone and soft tissue neoplasms, both benign and malignant.
2. Know the spectrum of benign and malignant neoplastic disease entities and tumor-like conditions encountered in musculoskeletal oncology
3. Know the important aspects of clinical diagnosis used in the evaluation of soft tissue and bone neoplasms
4. Understand the staging systems and the classification of surgical procedures utilized by musculoskeletal oncologists
5. Understand the management of surgical specimens and the approach to their interpretation through light microscopy, immunohistochemistry, and cytogenics.
6. Know the general principles for using adjuvant treatment modalities (radiation therapy and chemotherapy) and the surgical options available for palliative treatment of metastatic malignancies to including the evaluation and treatment of pending and overt pathologic fractures.
7. Understand the psychological aspects of patient management and the techniques for pain management in orthopaedic oncology patients.
8. Know the surgical options available for the palliative treatment of metastatic malignancies to bone including the evaluation and treatment of pending and overt pathologic fractures
9. Identify patient position, surgical approach, and pertinent anatomy for each tumor location
10. Know general surgical technique for bone and soft tissue resections and appropriate margin status
11. Design and implement the appropriate diagnostic approach to bone and soft tissue lesions from the initial office based clinical evaluation of the patient through a utilization of the entire spectrum of diagnostic modalities.
12. Synthesize clinical, radiographic, and pathologic diagnostic information into an appropriate differential diagnosis and a final definitive diagnosis for musculoskeletal lesions

Advanced: By the end of the PGY4 rotation in Musculoskeletal Oncology and building upon the experiences from the PGY2 rotation, the resident should:

1. Know the reconstructive options for use following treatment of benign bone tumors (i.e. cementation, internal fixation, bone grafting, and the use of graft alternatives)
2. Know the reconstructive options used in the treatment of malignant bone tumors (i.e. allografting, autografting, arthrodesis, total joint arthroplasties, and composite arthroplasties).
3. Know the reconstructive options utilized following the treatment of malignant soft tissue tumors (i.e. split thickness skin grafting, local rotational flaps, and amputation.
4. Understand the advantages and disadvantages of limb salvage vs. amputation in the management of bone and soft tissue tumors

III. Specialty Specific Psychomotor Skills

Basic:
1. Assist in planning of fine needle aspiration, true-cut needle biopsy, and open surgical biopsy in the management of soft tissue sarcoma. Know how and when each method is optimally utilized.
2. Plan and assist in performing core needle biopsy of bone lesions with fluoroscopic control and open biopsies of both soft tissue and bone tumors in the operating room when appropriate to stage of training.

**Advanced:** By the end of the PGY4 rotation in Musculoskeletal Oncology and building upon the experiences from the PGY2 rotation, the resident should:

4. Design and implement the appropriate diagnostic approach to bone and soft tissue lesions from the initial office based clinical evaluation of the patient through a utilization of the entire spectrum of diagnostic modalities
5. Plan and perform optimal biopsy procedures utilizing core needle biopsy of soft tissue masses as an office based procedure.
6. Plan and perform core needle biopsy of bone lesions with fluoroscopic control and open biopsies of both soft tissue and bone tumors in the operating room.
7. Synthesize clinical, radiographic, and pathologic diagnostic information into an appropriate differential diagnosis and a final definitive diagnosis for musculoskeletal lesions
8. Formulate a specific treatment plan for a wide spectrum of orthopaedic oncology conditions both benign and malignant involving bone and soft tissue tumors and tumor like conditions.
Physical Exam Competencies
Oncology Service: PGY2 and PGY4

By the end of the PGY2 rotation on the Orthopaedic Oncology service, the resident should be able to demonstrate proficiency in the key physical exam tests. The PGY4 rotation is an opportunity to polish these physical examination skills.

History:

☐ When did you first notice mass? How was it discovered?
☐ Where is the mass located?
☐ Is the mass getting bigger? Does it change in size?
☐ Is the mass painful? Aggravating/alleviating factors? Night pain?
☐ Systemic signs or symptoms?
☐ Personal or family history of malignancy?

Complete general examination: skin, heart, lungs, abdomen, lymph nodes

Examination of a mass:

☐ Size and location (superficial or deep)
☐ Nature of the mass (soft, firm, rocklike; soft tissue vs. bony origin)
☐ Freely mobile or fixed to the underlying tissues
☐ Tender to palpation
☐ Warmth

Special Tests:

☐ Tinel’s sign
☐ Transillumination
Surgical Competencies
Oncology Rotation – PGY2 at OSU

• Open bone and soft tissue biopsies
• IM nail placement of femur
• Small soft tissue mass resections such as lipoma
• Excisions of small benign bone tumors such as osteochondroma
Surgical Competencies
Oncology Rotation – PGY4 at OSU

- IM nail placement of humerus
- Larger benign soft tissue mass resections
- Curettage and bone grafting of benign bone tumors
- Use of adjuvant therapies of benign bone tumors such as cementation and cryosurgery
Oncology Reading List – PGY2 and PGY4

1) OKU musculoskeletal Tumors 2
2) Tumor Service Manual (handed out to residents at beginning of rotation. Also available in ortho library and on department website).
Oncology Service Didactics

- Tues Am Indications conference 6:15-7AM
- Thursday AM Multidisciplinary tumor board 7-8AM
- Journal article review 30 minutes 2 articles/week-- time arranged based on schedule of attendings