

Orthopaedic Oncology Service Goals and Objectives

One Junior (PGY 3) and one Senior (PGY6) resident rotate through the orthopaedic oncology service in each 3-month block, evenly split between the two residents.

This year PGY-6 splits the rotation with Dr. Bowman for community oncology clinic experience. They join the UCSD service every Wednesday and when not involved in Dr. Bowman's clinics/OR.

Resident is responsible for daytime call with the triage of the after hours calls left up to the resident on call. Oncology resident is responsible for initial evaluation of all patients referred directly to the orthopedic oncology service through emergency department, urgent care or inpatient consultations.

Full consultation note should be dictated on the inpatient system for ALL oncologic consultations from emergency room or on inpatients (see attached template).

This resident manages all initial stabilization of fractures, including closed reductions, splinting, and traction and appropriate consultation with medical and radiation oncology services. Should the consultation request be after duty hours on call resident deals with urgent issues and is responsible for transfer of all pertinent information to the orthopaedic oncology resident in the morning. The junior resident is expected to recognize and initiate timely treatment of orthopedic oncologic emergencies, including appropriate detection and treatment of impending and completed pathologic fractures with appropriate investigations instituted in a timely fashion to allow prompt stabilizations. He or she is familiar with the required laboratory and radiology tests to allow for safe and prompt care. S/he is expected to evaluate consults in a timely manner and communicate the recommendations to the requesting service in a professional manner.

The more senior level residents are responsible for close communication with the junior resident when on-call. Indications and appropriate tumor workup including local and systemic staging of bone and soft tissue tumors are learned and practiced. Surgical biopsy principles are clear and one is able to carry biopsy of soft tissue and bone tumors in oncologically sound manner. Adjuvant modalities are appropriately selected depending on the tumor type. Resident is able to propose and carry out a sound plan of investigations and appropriate consultations required for multidisciplinary treatment of common bone and soft tissue tumors. Resident will prepare cases and participate in the Sarcoma Tumor Boards. Resident will learn anatomic areas and participate in more complex cases including learn principles of wide and marginal resection including techniques of safe neurovascular dissection principles.

Thorough knowledge of anatomy of the operated area is required of residents at any level prior to scrubbing in for cases. The residents are involved with more complex cases as their experience is advanced.

Oncology clinic is held in a Multidisciplinary Tumor Clinic at the Moore's Cancer Center. Resident is expected to be cordial and work in a collaborative spirit with various specialties sharing the clinic. This offers tremendous opportunities for learning. Nurse care manager

works closely with the MSK oncology patients. Resident is responsible in communicating any information pertinent to patient care to the Nurse Care Manager so the appropriate follow-up and care coordination can be achieved.

The resident is therefore involved with initial examination, history and physical, as well as planning treatment. Treatment options are discussed in clinic and implemented accordingly. The team is fortunate to have all specialties represented in the same clinic. Emergent issues should be discussed in person with the consulting staff as well as documented in EPIC if urgent coordination with the medical or radiation oncologist is needed. These services sometimes require urgent assistance from orthopaedic oncology to assess their patient's risk for fracture while in their clinic. Resident will see these patients and coordinate plan with the help of treating physicians. Multidisciplinary approach to treating patients is with oncologic diagnosis is keystone of treatment paradigm. Residents have great opportunity to learn and practice their collaborative and communication skills.

There is a close working relationship with the other surgical teams including plastic, thoracic, and general surgery service. All of these services are present for Sarcoma Tumor Boards to discuss the individual care plan for all the primary bone and soft tissue tumor cases seen by the multidisciplinary team.

Progressive responsibilities are granted to residents. Operative skills and principles of proper biopsy, soft tissue handling, internal fixation, wide resection principles and soft tissue repair are learned and improved upon over the progressive rotations.

PATIENT CARE

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents are expected to:

- Learn and be proficient with management of metastatic disease, treatment of benign and malignant soft tissue and bone tumors. Must know how to carry amputations of all extremities at all levels and basic principles of amputations through pelvis and shoulder girdle. They will be exposed and expected to know principles of post-amputation care.
- Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their family members.
- Review patient's chart and clinical history
- Perform thorough history and physical exam
- Make informed decisions about diagnostic procedures and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment.
- Develop and carry out patient management plans, counsel and educate patients and their families.
- Participate in continuity of care of the patient, including preoperative assessment, discussion of treatment options (non-operative and operative), postoperative assessment, inpatient rounds, and clinic follow up.
- Use information technology to support patient care decisions and patient education.
- Utilize electronic medical record to document information

- Competently perform orthopedic procedures including joint aspirations and injections, splinting and casting, core needle biopsies performed in the clinic and open biopsies in the operating room.
- Provide health care services aimed at preventing injuries, recognizing and potentially treating osteoporosis, and maintaining health work with health care professionals, including those from other disciplines, to provide patient-focused care

Specific expected knowledge:

1. Residents at both levels are expected to learn and demonstrate the ability to do a complete history and physical exam of patients presenting in clinic or on the consult service with musculoskeletal conditions. (Enclosure 1) All new patient workups will be forwarded to me for review and an addendum.
2. Residents at both levels are expected to learn and understand the appropriate laboratory workup and diagnostic tests best suited for patients with musculoskeletal tumor and tumor-like conditions. This includes the appropriate extent of disease staging studies for those patients with primary bone and soft tissue malignancies, as well as what situations are better evaluated by a CT scan vs. an MRI.
3. Residents will participate in the informed consent process and learn how to comprehensively and appropriately outline and document the risks and alternatives to the recommended surgical procedures or the medical management plan.
4. Residents at both levels are responsible for the day-to-day care of the patients on the inpatient service. This includes a daily resident inpatient note, outlining the progress, problems and management plans. It also includes the timely dictation, review and signing of discharge summaries, which are to be forwarded to me for review and addendum. This also includes properly informing the patient of their discharge instructions, restrictions, medication doses and durations including anticoagulation orders, as well as the exact follow-up date.
5. Both residents will participate to their level, training and ability in the surgical management of the musculoskeletal tumor patients. The primary resident involved in the case is responsible for contacting the patient's family or representative immediately upon stabilizing the patient in the recovery room.
6. Residents are responsible for procuring and reviewing with me the preoperative diagnostic studies (x-rays, CTs, and MRIs) the day prior to the planned surgical event. In addition, residents are responsible for procuring and organizing the pertinent diagnostic studies for the Multidisciplinary Musculoskeletal Tumor Board.
7. The senior resident is responsible to teach, instruct and supervise the junior residents and medical students in all aspects of the surgical and clinical care of the oncology patient. The senior resident will be responsible to teach and supervise the junior resident and medical students both in the clinic and in the operating room. This includes reviewing postoperative orders as well as appropriate surgical techniques.

MEDICAL KNOWLEDGE

Residents must demonstrate knowledge about established and evolving biomedical, clinical, and basic sciences and the application of this knowledge to patient care. Residents are expected to:

- Understand non-operative treatment of common benign bone and soft tissue tumors
 - Indications for non-operative treatment
 - Appropriate follow-up including choice of imaging
 - Rehabilitation protocol
 - Length of appropriate follow-up
- Understand operative treatment of common fractures
 - Principles of complete local and systemic staging prior to commencing treatment
 - Indications for operative treatment
 - Appropriate choice of resection ranging from intralesional, marginal to wide
 - Operative risks, benefits, possible complications
 - Peri-operative treatment
 - Antibiotic coverage
 - DVT prophylaxis
 - Neo-adjuvant versus adjuvant modalities
 - Postoperative protocol including timely institution of adjuvant treatment including appropriate chemotherapy and radiation treatment
 - Time to start of adjuvant modalities safe for the surgical procedure carried out
 - Salvage procedure for failed surgery
- Self-study for orthopaedic oncology articles published in JBJS is expected. Additional keystone articles are provided based on the clinics. Reading of books including but not limited to the Orthopedic Knowledge Update Oncology (OKU) and provided basic orthopaedic tumor textbook “A Clinical guide to primary bone tumors” is expected.
- Review OITE oncology topics
- Attend all MSK tumor boards held at the Cancer Center, and at the VA
- Attend Grand Rounds and all oncology lectures
- Attend monthly M&M
- Attend at monthly city-wide oncology conference with the resident on the community oncology service
- Present cases at the city-wide oncology conference
- Review all pathology slides with the attending post-biopsy

Specific expected knowledge:

1. Both residents, after reviewing an anatomy book of their choosing, are to be able to discuss and identify the anatomical structures involved in each planned surgical procedure.
2. All residents will be given a binder with the recent AAOS Instruction Course Lectures on musculoskeletal tumor and tumor-like conditions. Included are other materials that I have written on specific subjects. Loaned to each resident while on the service will be the AAOS Orthopaedic Update on Tumors to be used while on this rotation and

individual copy of “Clinical guide to primary bone tumors”. They should be able to demonstrate knowledge on the disease entities on all surgical cases.

3. When presenting newly evaluated patients in the clinic or on the consultation service the residents are expected to demonstrate knowledge of specific disease entities and the treatment options.
4. Residents are to attend the Musculoskeletal Tumor Board, which meets Mondays at 5pm at UCSD Moores Cancer Center Otterson Board Room on the second floor.
5. Residents are to understand the following basic concepts and applications:
 - MSTS (Musculoskeletal Tumor Society)
 - Staging and Grading Classification
 - IA
 - IB
 - IIA
 - IIB
 - III
 - Classification of surgical margins and procedures:
 - Incisional
 - Marginal
 - Wide
 - Radical
 - Local control and reconstruction options for malignant bone tumors:
 - Amputation
 - Resection arthrodesis
 - Allograft or allograft composite reconstruction
 - Endoprosthesis reconstruction
 - Rotationplasty
 - Benign Tumors: Understand the demographic, clinical presentation, pathophysiology, radiographic evaluation and the current treatments.
 - Cartilage origin
 - Enchondroma
 - Osteochondroma
 - Chondromyxoidfibroma
 - Periosteal chondroma
 - Bone origin
 - Osteoid osteoma
 - Osteoblastoma
 - Fibrous origin
 - Non-ossifying fibroma
 - Fibrous cortical defect
 - Desmoid tumor of bone (grade ½ fibrosarcoma)

- Osteofibrous dysplasia (Campanacci's disease)
- Vascular origin
 - Hemangioma of bone
- Neural origin
 - None
- Cell of unknown origin
 - Giant cell tumor

Tumor-like conditions of bone: Understand the demographic, clinical presentation, pathophysiology, radiographic evaluation and the current treatments. These are non-neoplastic conditions, which can be confused with true tumors.

- Aneurismal bone cyst: a reactive process in bone
- Osteomyelitis: bacterial, fungal and TB
- Stress fracture
- Avulsion apophysitis
- Myositis ossificans
- Synovial chondromatosis and osteochondromatosis: a metaplasia of synovium
- Fibrous dysplasia: a bone dysplasia
- Langerhans granulomatosis (eosinophilic granuloma)

Malignant bone tumors: Understand the demographic, clinical presentation, pathophysiology, radiographic evaluation and the current treatments.

- Cartilage sarcomas:
 - Surgery alone
- Spindle cell sarcomas: (OGS, MFH)
 - Chemotherapy and surgery
- Round cell tumors: (Myeloma, Lymphoma, Ewing's Sarcoma)
 - Chemotherapy, radiation and surgery
- Bone origin: Osteosarcoma
 - Standard high-grade osteosarcoma
 - Parosteal OGS: OGS Low-grade I osteoblastic OGS
 - Periosteal OGS: Grade 2 ¾ chondroblastic OGS
 - Telangiectatic OGS: Vascular and always high-grade
 - Treatment (RT) associated OGS: high-grade
 - Illness associated (Paget's disease) OGS: high-grade
- Cartilage Origin: Chondrosarcoma
 - Primary Chondrosarcoma
 - Secondary CS (from an enchondroma or osteochondroma)
 - Dedifferentiated CS (high-grade spindle cell component)
 - Rx like OGS: Chemotherapy and surgery
- Hematopoietic cell of origin:
 - Myeloma
 - Lymphoma
- Plasmacytoma (myeloma precursor)
- Cell of unknown origin: Ewing's Sarcoma

- Neutral crest: Chordoma
- Other: Adamantinoma

Soft tissue tumors: Understand the demographic, clinical presentation, pathophysiology, radiographic evaluation, and the current treatments.

- Benign soft tissue tumors and tumor like conditions:
 - Lipoma
 - Myxoma
 - PVNS
 - Hemangioma
 - Ganglion
 - Muscle herniation
- Malignant soft tissue sarcomas:
 - Liposarcoma
 - Synovial sarcoma
 - MFH
 - Epithelioid sarcoma
 - Clear cell sarcoma of tendons and aponeuroses
- Skin malignancies:
 - Basal cell carcinoma
 - Melanoma
 - Squamous cell carcinoma
 - Dermatofibrosarcoma protuberans

Metastatic tumor to bone: Understand the demographic, clinical presentation, pathophysiology, radiographic evaluation and the current treatments. Realize that the natural history of each tumor is different and the management will therefore vary.

- Breast
- Lung
- Renal
- Prostate
- Thyroid
- Myeloma is frequently treated as a metastasis to bone

6. Surgical skills: It is anticipated that the R6 know and do everything the R3 is expected to know but in greater detail, understanding and proficiency.

- Understand the technique and perform an open biopsy of bone and soft tissue
- Perform an iliac crest graft
- Perform excisions of osteochondromas
- Perform curettage and bone graft of benign bone tumors
- Perform and assist in amputations: BKA with posterior flap and an AKA with a myodesis
- Assist in higher amputation
- Perform resections of low-grade soft tissue tumors
- Assist in the resection of high-grade soft tissue sarcomas

- Assist in limb salvage surgeries of bone
7. Surgical skills: In addition to becoming competent in all surgical techniques in the preceding paragraph #6 they are expected to understand basic in all aspects of limb-sparing energy surgery and in the major amputations; shoulder and hip disarticulation, forequarter and hemipelvectomy amputations

PRACTICE-BASED LEARNING AND IMPROVEMENT

1. The goal is to have the resident learn and demonstrate how to use the available texts, references and intern resources to develop an appropriate medical knowledge base that will be directed toward patient care.
2. The residents of both levels will be expected to formulate treatment plans based upon their accumulated knowledge of personal study as well as the day-to-day interactions with myself, chief residents or fellows during the evaluation of clinic patients, surgical cases and from the consult service. Feed back to the residents from me is an ongoing daily exercise in the clinic, wards and in the OR.
3. The residents are expected to play an integral role in the education of more junior residents, interns and medical students who rotate on the service.
4. An open book test is given to the residents at the beginning of the rotation to guide the personal study, and may be administered as a defined test at the conclusion of the rotation. (Enclosure 2)
5. In addition to the daily feedback given to the residents, a formal review of their progress is made at the completion of the rotation. This is prepared by the department, filled out by the attending and discussed with each resident as he or she leaves the service.

ADMINISTRATIVE DUTIES:

General:

1. Make sure the first patient of the surgical day is seen by 6:30 and appropriately checked in.
2. All clinic work-ups are to be entered in EPIC and signed off and sent to me for an addendum by 7pm on the day of clinic.
3. All discharge summaries are to be sent to me for an addendum.
4. Daily hospital notes should include the statement that "Dr. Kulidjian concurs with the patient's status and treatment plan."

R-3 and R-6:

Acquire x-rays for the Tumor Board and for all operative cases. Have appropriate views printed out.

Evaluate all patients coming in for surgery to be sure that the consents and H & Ps are current; Labs, CXR, EKG and other necessary clearances have been done and are on the chart.

INTERPERSONAL AND COMMUNICATION SKILLS

Resident will at all times demonstrate behavior that is beyond reproach. Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their patients families, and professional associates.

Residents are expected to:

- Demonstrate honest, open, civil, and effective communication with patients, staff, and colleagues (medical students, residents, attendings).
- Utilize interpreters in order to assure patient understanding if language barriers exist
- Create and sustain a therapeutic and ethically sound relationship with patients
- Use effective listening skills.
- Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.
- Work effectively with others as a member or leader of a health care team or other professional group

PROFESSIONALISM

Professionalism is especially important with patients who have oncology issues. A quote from W. Somerset Maugham's "Of Human Bondage" (1915) sums it up. When a turn of the century (1900) physician was asked why he always put on his white collar before seeing a patient, his response was: "Sometimes, that is all I have to offer them."

1. While professionalism is an important part of every Orthopaedic subspecialty area, it takes on a more critical role in the oncology or prospective oncology patient where the issues immediately focus on the real concern of the potential loss of a limb or loss of life; and some patients will lose their extremity and/or their life.
2. These concerns make most if not all oncology issues emergencies, at least in the patient's mind. In addition, many patients have been symptomatic for some time and have become frustrated by a medical system that in many cases is not very responsive to their complaints or needs (delay in diagnosis). Further it is not uncommon that they have been told, incorrectly, that they have a cancer and that they will need an amputation or that they are going to die. To say the least, these patients are among the most emotionally charged. It is therefore so critical that all members of the team present themselves and comport themselves in the most professional manner as this will help mitigate inappropriate anxieties and induce confidence.
3. Professionalism includes proper attire; look sharp and be squared away. Be courteous and show respect, empathy and understanding. Maintain strict adherence to patient confidentiality along HIPPA guidelines. Be sensitive to differences in the patient's culture, gender, age and disabilities. It requires the ability to listen to what the patient has to say. Most everything is in the history, which is then followed by a complete and thorough physical exam, keeping the patient properly draped and being sensitive to modesty issues. Then the diagnostic studies are reviewed.

4. Professionalism comes to bear when giving informed consent. You need to be able to inform the patient correctly and accurately of the potential risks and problems, putting them in perspective of their age and urgency of the recommended surgical treatment, yet without unduly distressing them. To do this the doctor-patient relationship has to have been well established, hence the need for the operating surgeon to do this consent. Informed consents on the Orthopaedic Oncology Service are obtained with the residents present and are dictated as part of my consultation note. It also appears again in the operative note under “Indications and Consent for Surgery” at the beginning of the operative dictation. It includes the following language as well as additional comments as a specific procedure necessitates:

“Any surgical procedure carries with it the risks of loss of limb or loss of life. Medical complications include but are not limited to death or disability from a heart attack, stroke, GI bleeding, thrombophlebitis and pulmonary embolism, sepsis, adverse reactions (death) due to blood transfusions, allergy or adverse drug interaction. There are other rare, unknown and uncommon systemic conditions that could also adversely affect the systemic outcome. Local complications include but are not limited to wound dehiscence, deep infection, failure of fixation or reconstruction, damage to nerves and vessels which could be temporary or permanent, leg length inequality, local recurrence as well as other rare, uncommon and unknown local complications that may necessitate re-operation, more complex orthopaedic reconstructions or amputation. The patient was informed, his or her questions were answered, and the consents were signed.”

5. Professionalism again remains paramount when patients present with inoperable conditions and when death from the condition is a certainty. Alternatively if in the course of a patient’s care a limb-sparing procedure fails or the disease process progresses and becomes unresponsive to systemic treatment, with death the eventual outcome; professionalism is critical. The patient and family need, after careful explanation, to be assured that they have had the best of care, the best that modern medicine that this tertiary/quaternary program can deliver. Their only consolation is to believe that they have had the very best shot at survival. The absence of professionalism anywhere along the line precludes the successful delivery and acceptance of this message, increasing their anguish and the tragedy of their death. Cancer is always an unwanted, untimely and most assuredly undeserved interloper. These patients deserve our very best. Professionalism is sometimes all we have to offer them.
6. Residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. Residents are expected to:
 - Demonstrate respect, compassion, and integrity in all interactions
 - Evaluation of consults in a timely manner
 - Accountability to patients, society, and the profession
 - Commitment to excellence and on-going professional development
 - Commitment to life-long learning
 - Demonstrate a commitment to ethical and moral principles

- Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities
- Progressive responsibility from junior resident to chief resident level
- Serve as role models to more junior residents, medical students, and staff
- Incorporate feedback from patient evaluations and 360 degree evaluations for self-improvement
- Regular and active participation at grand rounds
- Communicating with patient families on rounds, for consents when necessary, and postoperatively
- Participation in AAOS/ ORS meetings as research residents and chief residents, sponsored by the Department
- Regular attendance at educational activities and committee meetings
- Compliance with hospital policies
- Prompt completion of medical records/ dictation

SYSTEMS-BASED PRACTICE

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value. Residents are expected to:

- Understand how their patient care and other professional practices affect other health care professionals, the health care organization, and the larger society and how these elements of the system affect their own practice.
 - Know how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources.
 - Practice cost-effective health care and resource allocation that does not compromise quality of care.
 - Advocate for quality patient care and assist patients in dealing with system complexities.
 - Participation on utilization review/ discharge planning teams
 - Proper use of PCIS to gather data.
 - Proper use PACS (digital imaging), including templating.
 - Proper and complete dictations for outpatients, consults, and operative reports including sending a "cc" to referring physicians.
 - Introduction to billing held at the beginning of the rotation.
 - Appropriate use of consultants.
 - Appropriate response to consultants, including timely evaluation of consults
1. The residents need to develop an understanding of the different types of payer plans such as worker's compensation, private insurance, Medicare, HMO plans, PPO plans, Medical and CCS. They need to get a feel for not about the amount payment per se, but the various rules that allow us to capture the patient to afford them what we believe is the best tertiary and quaternary medical care in the region.
 2. The residents need to learn and be conscious of the necessity to provide both efficient but also cost-effective care with appropriate use of limited medical resources without compromising the quality of care.

3. The residents need to demonstrate the effective use of hospital resources, utilizing them in a cost-effective method and in a way that directly benefits the patient.
4. The residents need to become the patient's advocate and assist them in obtaining the best quality of care while at the same time working with the health manage groups to utilize those resources where and whenever possible. This can require personal calls to the primary care physicians or the plan's medial director to cordially explain the situation and why they should approve the care you have requested at our institution.
5. If patients cannot get access to care within our program it is incumbent to see if we can get them cared for at other institutions within our system if possible: The Veterans Hospital, the Rady Children's Hospital.

PAST MEDICAL HISTORY AND REVIEW OF SYSTEM:

Allergies:

Past Surgeries:

- 1.
- 2.
- 3.
- 4.
- 5.

Other Illnesses:

- | | |
|--|-----------------------------------|
| <input type="checkbox"/> ACPVD | <input type="checkbox"/> ASCVD |
| <input type="checkbox"/> Bleeding Problems | <input type="checkbox"/> BPH |
| <input type="checkbox"/> COPD | <input type="checkbox"/> Diabetes |
| <input type="checkbox"/> GERD | <input type="checkbox"/> Stroke |

Past Hospitalizations:

Medicine (drug, dose and reason): Anticoagulants: Yes, Which ones: No

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

Habits (alcohol, tobacco, other drugs):

Family History:

- Grandparents:
- Parents:
- Siblings:
- Children:

Social History: marital status, occupation, job considerations, housing and foreign travel, post operative care considerations:

REVIEW OF SYSTEMS: Note duration of illness.

GENERAL: general health good or bad, weight loss, weight gain, fatigue, anxiety:

SKIN: migraine headaches, seizures, stroke, or psychiatric:

HEENT: eyes, ears, nose, or throat problems:

LUNGS: pneumonia, TB, asthma, cough, valley fever, or pulmonary embolism:

CARDIAC: HTN, heart attacks, chest pain, shortness of breath, or arrhythmia or surgery:

GI: hepatitis, yellow jaundice, stomach ulcers, or gallbladder problems, nausea vomiting, diarrhea, constipation, rectal bleeding and colon carcinoma, colonoscopy:

GU: kidney problems, kidney stones, blood in urine, urinary tract infections, dysuria or frequency, PSA:

ENDOCRINE: diabetes or thyroid problems:

GYN: menarche, menopause, pap smears, and mammograms:

ORTHOPAEDIC: injuries, fractures, total joint, or phlebitis:

IMMUNOLOGY: past infections, healing problems:

HEMATOLOGY: anemia, past infusions, platelet count issues:

LABORATORY: EKG, CXR, CEA, PSA, CBC, Sed rate C-Reactive Protein, Comp Metabolic Panel, Albumin, and tumor markers:

PHYSICAL EXAM:

GENERAL APPEARANCE:

RACE: White Black Hispanic Chinese Japanese Filipino Hawaiian Korean Asian
Pakistan/ Indian Vietnamese Cambodian Thai Polynesian NOS Asian NOS Native
American Other_____

VITAL SIGNS: Height _____ Weight _____ BP _____ Temp _____
Pulse _____ Resp _____

SKIN: rashes, moles, lesions, varicosities:

LYMPH NODES: cervical, axillary, inguinal:

HEAD: eyes, ears, nose, and throat/ sclera, trachea, or thyroid:

CHEST: breast exam, breath sounds, rales, rhonchi, or wheezes:

HEART: rate, arrhythmia, or murmur:

ABDOMEN: tenderness, masses, bowel sounds, or organomegally:

GENITALIA AND RECTAL:

MUSCULOSKELETAL:

Back: CVA tenderness, scoliosis, flexibility, or spinal tenderness
Extremities:

Vascular: varicosities, pulses, or edema:

NEUROLOGIC:

Motor strength:

Sensory:

Reflexes:

DIAGNOSTIC STUDIES: dates and results

X-ray Lesion:

X-ray Chest:

CT Lesion:

CT Chest:

MRI Lesion:

Bone Scan:

PET Scan:

Angiography:

Ultrasound:

Labs:

Biopsy Report and Slides:

IMPRESSIONS:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

COMMENTS-DISCUSSION-COUNSELING: dictate with report

PLAN:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

Consultation/ H&P Dictated

** (Copies of all consultations/ H&P automatically sent to referring MD)

Physician Name (printed) _____ **Date** _____

Physician Signature _____

Enclosure 2:

Orthopaedic Oncology Resident Exam

1. Describe the MSTS system of staging and grading.
 - IA
 - IB
 - IIA
 - IIB
 - III
2. Describe the four types of surgical margins. Name a tumor that could be managed by each.
3. What are the 6 local control and reconstruction options for malignant bone tumors?
4. List in order the four most aggressive benign bone tumors or tumor-like conditions of bone (most aggressive to least).
5. Describe the difference between an Osteoid Osteoma and an Osteoblastoma and how non-steroidals work on the former
6. Define the following and what the malignant potential for following is, and draw an example of each of the first four.
 - Enchondroma
 - Ollier's Disease
 - Solitary Osteochondroma
 - Multiple Hereditary Osteochondroma
 - Maffuci's
7. What is the inheritance mode of multiple osteochondroma? Draw a pedunculated and a sessile-based osteochondroma of the distal femur.
8. What is the natural history of non-ossifying fibroma, which needs to be operated upon (radiographic criteria)? What test is best to determine whether or not surgery is needed?

9. What is a desmoid tumor? Where are they found and what is the recommended treatment of:
desmoids of soft tissue?
desmoids of bone?
10. Where do giant cell tumors come from?
11. What are the 2 key surgical techniques in managing a GCT by curettage?
12. Why are the adjuvants used in GCT and why? And how do they work?
13. Why are there pulmonary metastases with GCT?
14. What is the most common benign bone tumor?
- What is the most common malignant bone tumor?
 - What is the most common malignant and benign bone and soft tissue tumor in the hand?
 - What is the most common soft tissue sarcoma of the foot?
 - Where and in what decades do most soft tissue sarcomas occur?
 - What is the most common soft tissue sarcoma in children?
 - What is the most common soft tissue sarcoma in adults?
15. How many cases of the following tumors occur in the USA per year?
OGS: 5.3/1,000,000
Myeloma: 7.1/100,000
Ewing's: 2.9/100,000
Lung Cancer: 76/100,000 m>f
Breast Cancer: 150/100,000
16. Draw the following tumors in the femur or the tibia. What is the age range, and location (epiphyseal, diaphyseal, and metaphyseal)?
GCT:

ABC:

Chondroblastoma:

OGS:

Ewing's Sarcoma:

Parosteal OGS:

Osteoid Osteoma:

Non-ossifying Fibroma:

17. What is an ABC? Draw an ABC and a GCT of the proximal fibula. How do you treat an ABC?

18. Describe the history: clinical exam, radiology, and bone scan of a stress fracture and the methods of managing in a sedentary patient and an athlete.

19. What three conditions (inflammatory, tumor-like, and malignant) present and look alike? When you think of one you need to think of the other two.

20. What is the sedimentation rate range for the following?

Normal:

GCT/OGS:

Osteomyelitis:

Lupus:

21. What is a good way to look at a metaphyseal cortical defect of the distal femur? What can it be confused with?

22. When was phenol first used for GCT? Who was the first to use it? What institution?

23. Who first used the Cryotherapy for GCT and when?

24. Who first used Allografts for GCTs and other low-grade tumors? When and where?

25. What is the natural history of OGS with amputation alone? What is it today?

26. Who first used Endoprostheses and adjuvant chemotherapy for osteosarcoma? When and where?
27. What were the first two chemotherapy agents found to be successful in metastatic OGS? Where did this work occur?
28. What are the 2 other drugs used in OGS and when did they come into use?
29. Draw the CT and path of fibrous dysplasia and Osteofibrous dysplasia.
30. Osteofibrous dysplasia is a precursor of what tumor? How is that tumor treated? Where does it occur (location) most of the time?
31. What are synovial chondromatosis and osteochondromatosis? What is the malignant potential? Can more than one be found in one joint?
32. What do radiographs of PVNS of a joint and TB of a joint have in common?
33. What is vertebra plana? What is it supposedly pathognomonic for? What other malignant condition can present this way?
34. What is the significance of bone metastasis or local recurrence in OGS and local recurrence in soft tissue sarcomas?
35. What are the four malignancies of the skin?
36. What is the most common soft tissue sarcoma?
37. Is the treatment for the bone sarcomas (OGS, Chondrosarcoma, and Ewing's) standardized and if so what are the regimens? And why?

38. What is the rational of adjuvant treatment in soft tissue sarcomas?
39. What is a glomus tumor, and where does it occur and what is the treatment?
40. There is a large soft tissue sarcoma of the thigh. What is the standard treatment?
41. Who has shown that Ifosfamide is useful in synovial sarcoma?
42. Describe the principles of an open biopsy.
43. Describe how you do the following operations:
BKA:

AKA:

Excision of an osteochondroma:

Management of a GCT stage 1 or 2:

Management of a GCT stage 3:

Obtain a posterior iliac crest bone graft:
44. What is the philosophy in managing metastatic disease?

45. What is the probability that a patient with a known malignancy and a bone scan with a single has metastatic disease? What else can the hot spot be?
46. What tumors can have needle biopsy and which need an open biopsy?
47. What tumors tend to metastasize to bone? What are the principles of ORIF in these cases?
48. What is unique about metastatic renal?
49. What is unique and how do you treat metastatic thyroid?
50. What is different about metastatic lung cancer to bone and how is it treated?
51. Create a chart showing: 5 common tumors to bone plus myeloma: lytic or blastic, response to RT, Chemo, Hormonal treatment, life expectancy.
52. Which metastatic bones don't need to be operated upon, rather just RT palliation?
53. What is the time frame (years) for the development of radiation (treatment associated) sarcoma?
54. What tumors are associated with these pathologic terms or radiographic terms?
- Osteoid:
 - Small blue round cell tumors (4):
 - Chicken wire calcification:
 - Eosinophils:
 - Physaliphorous:
 - Herring bone:
 - "Onion skinning":
 - Popcorn calcifications:
 - Ground glass appearance on X-ray:
 - "Fallen leaf" sign:
 - Fluid-fluid levels:
 - Codman's triangle: malignant bone tumor:

55. How do you treat?

- UCB
- GCT
- OGS
- Ewing's sarcoma
- NOF
- O.O.
- ABC
- STS
- PVNS of the knee
- PVNS of the hip
- Extra abdominal desmoids tumors
- Parosteal OGS
- Chondrosarcoma
- Dedifferentiated Chondrosarcoma
- Chondroblastoma
- Osteomyelitis
- Pathologic fracture of the
 1. Clavicle
 2. Rib
 3. Scapula
 4. Humerus, femur, tibia
 5. Spine
 6. Acetabulum
 7. Ulna
 8. Fibula
 9. Radius

56. How thick can the cartilage cap on an osteochondroma be? What is the significance?

57. What is the significance of local recurrence of a soft tissue sarcoma, bone mets is OGS?

58. What are the 2 most important factors influencing survival with soft tissue sarcomas?
59. Draw a cross section of a tibia with fibrous dysplasia, Adamantinoma and Osteofibrous dysplasia.
60. What 4 things can be cold on bone scan?
61. What is hot on bone scan?
62. What are the side effects of or unique features of: (all are myelosuppressive)
Adriamycin:
Ifosfamide:
Cisplatin:
Methotrexate:
63. What are Ollier's and Mafucci's disease and the malignant potential of each?
64. Describe the radiographic, survival, responsiveness to x-ray, hormonal, chemotherapy, and natural history factors of Myeloma and metastatic:
- Lung
 - Renal
 - Prostate
 - Thyroid
 - Breast
 - Myeloma
65. Describe Enneking's classification of bone tumors.
66. Describe the classification of GCT.
67. Name conditions that can be polyostotic in bone. (9)
68. What is Osteofibrous Dysplasia? What is its relationship to Adamantinoma? How does it differ from fibrous dysplasia? What Orthopaedic Oncologists name is associated with it and what was his contribution to the management of this disorder?