



**MICHIGAN MEDICINE**  
UNIVERSITY OF MICHIGAN

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DEPARTMENT OF SURGERY  
**DIVISION OF SURGICAL ONCOLOGY**

SURGICAL ONCOLOGY ROTATION  
GENERAL SURGERY WHITE (SGW)

University Hospital  
East Ann Arbor Surgery Center

House Officer I  
House Officer II  
House Officer III  
House Officer IV  
House Officer V

Curriculum/Rotation Goals and Objectives for  
Surgery Residents

# Surgical Oncology Service (White)

## House Officer I

**Goal:** The goal of the HO I Surgical Oncology rotation is to build on the residents' overall general surgical knowledge and operative experience and exposure to the clinical management of breast disease and breast cancer, melanoma and non-melanoma skin cancer. The HO I resident will also learn the preoperative assessment and post-operative care of patients undergoing complex surgical oncology procedures.

### Learning Objectives:

#### Patient Care:

By the end of the Surgical Oncology rotation, the HO I resident will be able to:

1. Gather essential and accurate information for a woman presenting with a breast problem, including a risk assessment
2. Demonstrate competency in the physical examination of the breast, including the cervical, supraclavicular and axillary lymph nodes
3. Obtain a complete and thorough history for a patient presenting with an atypical skin lesion or soft tissue mass
4. Perform a total body skin examination and nodal assessment
5. Demonstrate safe and effective outpatient post-operative management of surgical oncology patients, including wound care and drain management
6. Demonstrate basic manual skills including knot tying, handling of scissors, scalpels and electrocautery, basic suture techniques:
  - a. Layered closures
  - b. Running suturing techniques
  - c. Interrupted suturing techniques
  - d. Subcuticular skin closures
7. Assist and perform portions of basic surgical oncology procedures under supervision, such as breast biopsies, excisional biopsies, and wide excisions

#### Medical Knowledge:

By the end of the Surgical Oncology rotation, the HO I resident will be able to:

##### 1. Breast Disease

- a. Describe the embryology, histology and physiology of the breast
- b. Outline the indications for screening mammography and know the BI-RADS system
- c. List the risk factors for breast cancer, and discuss the implications of high risk breast lesions including LCIS, ADH and ALH
- d. Develop an algorithm based on history, risk factors, exam findings, and breast imaging for the evaluation of a palpable breast mass and a non-palpable abnormality discovered on screening mammography
- e. Describe the options for biopsy of both palpable and non-palpable breast masses and the relative risks and benefits of each
- f. Describe the pathology of breast cancer, distinguishing between in situ and invasive cancer, and prognostic and predictive factors such as grade, ER/PR and Her-2 neu expression

##### 2. Cutaneous Oncology

- a. Recite the ABCD's of melanoma and identify an 'atypical' skin lesion
- b. Recall the risk factors and epidemiology of melanoma and non-melanoma skin cancer
- c. Recall the anatomy of the skin with specific attention to the implications in melanoma and non-melanoma cancers
- d. Describe the options for biopsy of an atypical skin lesion including shave biopsy, saucerization, punch biopsy and excisional biopsy, and the relative advantages and disadvantages
- e. Outline the surgical management and appropriate margins for the excision of basal cell carcinoma, squamous cell carcinoma and melanoma
- f. Outline the principles of sentinel lymph node biopsy and describe the indications for performing SLN biopsy in patients with melanoma

### 3. Soft Tissue Masses

- a. Describe the differential diagnosis for a palpable soft tissue mass on the trunk or extremity
- b. Recite the risk factors and epidemiology of soft tissue sarcoma
- c. Develop an algorithm that includes pertinent history, risk factors, examination findings and initial diagnostic evaluation of a soft tissue mass
- d. Describe the options for biopsy of a soft tissue mass (including FNA, core needle biopsy, incisional biopsy and excisional biopsy) and the relative advantages and disadvantages

### Systems-Based Practice:

By the end of the Surgical Oncology rotation, the HO I resident will be able to:

1. Work in cooperation with non-physician care givers including nurse practitioners and nurse coordinators in the clinic and physician assistants and discharge planners on the ward
2. Demonstrate understanding of how to order and obtain tests and schedule procedures
3. Dictate outpatient clinic notes that accurately reflect patient problems and management
4. Advocate for quality patient care and assist patients in dealing with system complexities

### Practice-Based Learning and Improvement:

By the end of the Surgical Oncology rotation, the HO I resident will be able to:

1. Use information technology to manage information, access on-line medical information and support their own education
2. Conduct an effective literature search about topics in surgical oncology
3. Describe a systematic approach to evaluate the results of one's own practice

### Professionalism:

By the end of the Surgical Oncology rotation, the HO I resident will be able to:

1. Demonstrate honesty, reliability and respectfulness in working with patients and colleagues
2. Dress neatly and appropriately when working with patients in all settings
3. Recognize the importance of timely record keeping and its impact on the quality of oncology care

### Interpersonal and Communication Skills:

By the end of the Surgical Oncology rotation, the HO I resident will be able to:

1. Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families
2. Respect the patient's right to privacy
3. Respect the sexual, moral, ethical or religious characteristics of the patient, their families and other health care professionals
4. Interview and evaluate the oncology patient

# Surgical Oncology Service (White)

## House Officer II

**Goal:** The goal of the HO II Surgical Oncology rotation is to continue to build on the resident's overall general surgical knowledge and operative experience and provide more concentrated exposure in the surgical management of oncologic patients, focusing on breast cancer, melanoma, Merkel cell carcinoma and soft tissue sarcoma. The HO II resident will also begin to expose residents to office-based procedures (biopsy techniques, aspirations) and breast and soft tissue operative procedures (excisional biopsies, wide excisions, wire localization breast biopsies and sentinel lymph node biopsy). The HO II Surgical Oncology rotation will also provide additional education in the principles of tumor immunology and immunotherapy.

### Learning Objectives:

#### Patient Care:

By the end of the Surgical Oncology rotation, the HO II resident will be able to:

1. Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families
2. Gather essential and accurate information about their patients, with a focus on women with breast complaints, patients with soft tissue masses or atypical skin lesions, or patients diagnosed with breast cancer, melanoma or sarcoma
3. Demonstrate proficiency at performing office based procedures including:
  - a. Punch biopsy of an atypical skin lesion
  - b. Aspiration of a breast cyst
  - c. Core biopsy of a breast or soft tissue mass
4. Take a thorough family history of a cancer patient and identify possible genetic predisposition syndromes
5. Describe the work-up of the patient presenting with a soft tissue mass, including the radiologic evaluation and options for biopsy
6. Counsel and education patients and their families, under the guidance and direction of senior residents and faculty
7. Use information technology effectively to support patient care decisions and patient education
8. With appropriate direct supervision and intraoperative assistance, perform surgical procedures including:
  - a. Excision of a breast or soft tissue mass
  - b. Wire localized excisional biopsy of a non-palpable breast abnormality
  - c. Central duct excision for nipple discharge
  - d. Wide excision of a melanoma with appropriate margins
9. Collaborate with health care professionals, including those from other disciplines, to provide patient focused care, with particular attention to the multidisciplinary care of the oncology patient, which includes medical oncologists, radiation oncologists, dermatologists, radiologists, pathologists and mid-level providers

#### Medical Knowledge:

By the end of the Surgical Oncology rotation, the HO II resident will be able to:

##### 1. Benign Breast Disease

- a. Develop a diagnostic and therapeutic plan for a patient presenting with breast pain, including the appropriate breast imaging, reassurance, therapeutic options and appropriate follow-up
- b. Develop a diagnostic and therapeutic plan for a woman presenting with nipple discharge, including appropriate imaging, laboratory work-up (and follow-up diagnostic tests) and the

indications for duct excision

- c. Outline a diagnostic evaluation of a male presenting with a breast mass, including a detailed history and physical (including risk factors, breast and nodal examination and testicular examination), appropriate lab tests and imaging and subsequent management options
- d. Complete a thorough preoperative work-up of a patient presenting with breast cancer or melanoma, including risk assessment, appropriate imaging and evaluation of distant disease

## **2. Breast Cancer**

- a. Discuss frequency/death rates and trends for breast cancer in the United States.
- b. Categorize breast cancer by TNM and AJCC staging
- c. Outline an algorithm for evaluation and treatment of breast cancer concordant with NCCN guidelines
- d. Describe the absolute and relative contraindications for breast conservation therapy
- e. Contrast the various options for reconstruction after mastectomy and the implications for radiation
- f. Interpret predictive and prognostic signs in breast cancer and the implications on surgical and adjuvant therapy
- g. Define the indications for sentinel lymph node mapping and completion lymphadenectomy in breast cancer
- h. Outline the algorithm for the intraoperative identification of the sentinel lymph node biopsy, including the benefits and risks of radiolabelled tracers, blue dye and the 10% rule

## **3. Cutaneous Oncology**

- a. Discuss frequency/death rates and trends for melanoma in the United States
- b. Outline an algorithm for the evaluation and treatment of melanoma concordant with NCCN guidelines
- c. Recite the recommended margins of excision based on level of invasion for melanoma and non-melanoma skin cancer
- d. Outline the options for closure after a wide excision including the principles of primary closure, advancement flaps and split thickness and full thickness skin grafts
- e. Describe the surgical management of unusual presentations of cutaneous melanoma, including on the digits (or subungal) and on the head and neck
- f. Define the indications for sentinel lymph node mapping and completion lymphadenopathy in melanoma
- g. Define the algorithm for the intraoperative identification of the sentinel lymph node biopsy, including the benefits and risks of radiolabelled tracers, blue dye and the 10% rule

## **4. Statistics and Clinical Trial Design**

- a. Identify and classify different types of trial designs, including the relative advantages and disadvantages of different types of epidemiologic studies in oncology, the inherent biases and limitations
- b. Outline the basic tenets of the scientific method as applied to clinical research and outline the steps in the generation of a research hypothesis from clinical questions or observations
- c. Explain the different types of data, including and differentiate between dependent and independent variables
- d. Define the 'null hypothesis' and what it means to either accept or reject the null hypothesis
- e. Describe the goals and design principles of phase I, phase II, phase III and phase IV trials in oncology

## **5. Immunology and Immunotherapy**

- a. Recall the various components of both the innate and adaptive immune response
- b. Explain the principles of tumor-specific antigens and describe examples
- c. Describe the principles of T-cell activation including antigen presentation, co-stimulation and cytokines involved in generating a T-cell response
- d. Describe the principles of B-cell activation and the generation of tumor-specific antibodies
- e. Describe how the immune system mounts an immune response against tumors and the mechanisms by which antibodies and T-cells can kill malignant cell
- f.

## **Systems-Based Practice:**

By the end of the Surgical Oncology rotation, the HO II resident will be able to:

1. Apply their knowledge of systems in delivering optimal health care, including inferring how “system problems” contribute to quality problems
2. Explain 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
3. Describe how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources
4. Define cost-effective health care and discuss how to address issues of resource allocation without compromising quality of care
5. Discuss the economic and psychosocial issues associated with malignant disease
6. Advocate for quality patient care and assist patients in dealing with system complexities
7. Collaborate with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance

## **Practice-Based Learning and Improvement:**

By the end of the Surgical Oncology rotation, the HO II resident will be able to:

1. Analyze practice experience and perform practice-based improvement activities using a systematic methodology
2. Locate, appraise, and assimilate evidence from scientific studies related to their patients’ health problems
3. When given online resources, conduct an effective literature search about a given oncology surgery topic
4. Describe/design a systematic approach to evaluate the results of one’s own practice

## **Professionalism:**

By the end of the Surgical Oncology rotation, the HO II resident will be able to:

1. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supersedes self-interest; accountability to patients, society, and the profession; and a commitment to excellence and on-going professional development
2. Demonstrate appropriate sensitivity to the obese patient population, and understand how their needs may be different from other patients
3. Recognize the importance of timely record keeping and its impact on the quality of general surgery care
4. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices
5. Demonstrate sensitivity and responsiveness to patients’ culture, age, gender, and disabilities

## **Interpersonal and Communication Skills:**

By the end of the Surgical Oncology rotation, the HO II resident will be able to:

1. Create and sustain a therapeutic and ethically sound relationship with patients
2. Demonstrate and employ effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills
3. Work effectively with others as a member or leader of a health care team or other professional group
4. Interview and evaluate the patient, especially the newly-diagnosed cancer patient

# Surgical Oncology Service (White)

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## House Officer III

**Goal:** The goal of the HO III Surgical Oncology rotation is to solidify the resident's overall general surgical knowledge and operative experience and provide concentrated exposure to complex surgical oncology. The HO III rotation will provide more experience in the multidisciplinary management of cancer, and be expected to construct multimodality treatment plans in breast cancer, melanoma, Merkel cell carcinoma and sarcoma. Residents at the HO III level should become independent at breast and soft tissue surgery, sentinel lymph node biopsy, axillary and inguinal lymph node dissections, and routine laparoscopic procedures in oncology. The PGY HO surgical oncology rotation will also expand upon the clinical application of targeted molecular therapies and immunotherapy.

### Learning Objectives:

#### Patient Care:

By the end of the Surgical Oncology rotation, the HO III resident will be able to:

1. Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families
2. Gather essential and accurate information about their patients, especially regarding breast disease, melanoma, Merkel cell carcinoma and soft tissue sarcomas
3. Take a thorough family history and identify potential genetic predisposition syndromes
4. Palpate and describe a breast mass or enlarged lymph node
5. Perform a thorough history physical examination with a focus on identifying signs and symptoms of advanced cancer
6. Generate a multidisciplinary treatment plan for breast cancer and melanoma based on patient information and preferences, appropriate preoperative staging, and up-to-date scientific evidence
7. Use information technology effectively to support patient care decisions and patient education
8. Assist and perform portions of operative cases (under appropriate supervision) such as:
  - a. Wide excision of melanoma
  - b. Sentinel lymph node biopsy
  - c. Simple and modified radical mastectomy
  - d. Split thickness and full thickness skin grafts
  - e. Axillary lymph node dissection
  - f. Superficial inguinal lymph node dissection
  - g. Routine laparoscopic procedures in oncology
9. Collaborate with health care professionals, particularly those from other disciplines, with particular attention to the multidisciplinary care of the breast cancer, melanoma or sarcoma patient, which includes interactions with medical oncology, radiation oncology, dermatology, pathology, radiology, nuclear medicine, and mid-level providers from the clinic and inpatient services

#### Medical Knowledge:

By the end of the Surgical Oncology rotation, the HO III resident will be able to:

##### 1. Breast Cancer

- a. Outline an algorithm for evaluation and treatment of breast cancer concordant with NCCN guidelines.
- b. Describe the absolute and relative contraindications for breast conservation therapy, and indications for SLN biopsy and ALND, and generate a surgical plan for patients with breast cancer based on history and physical, imaging studies and patient preferences

- c. Describe the relative advantages and disadvantages of immediate versus delayed reconstruction, implant-based versus autologous reconstruction, and various options for autologous reconstruction, and coordinate a plan with plastic surgery
- d. Define the indications for neoadjuvant chemotherapy in breast cancer, the implications on both surgical planning and prognosis, and the evaluation of the patient prior to initiating neoadjuvant chemotherapy
- e. Describe the biology of radiation in the treatment of cancer and apply this to its use as a component of breast cancer treatment

## **2. Cutaneous Oncology**

- a. Outline an algorithm for the evaluation and treatment of melanoma concordant with NCCN guidelines
- b. Recite the recommended margins of excision based on level of invasion for melanoma and non-melanoma skin cancer
- c. Outline the options for closure after a wide excision including the principles of primary closure, advancement flaps and split thickness and full thickness skin grafts
- d. Describe the surgical management of unusual presentations of cutaneous melanoma, including on the digits (or subungual) and on the head and neck
- e. Define the indications for sentinel lymph node mapping and completion lymphadenopathy in melanoma
- f. Describe the options for adjuvant therapy of stage III melanoma
- g. Outline an algorithm for the evaluation and treatment of Merkel cell carcinoma
- h. Define the local regional management of Merkel cell carcinoma, appreciating the role of adjuvant chemotherapy and radiation therapy

## **3. Sarcoma**

- a. Identify the components of an extent of disease work-up for a patient diagnosed with sarcoma.
- b. Create a diagnostic and treatment plan for soft tissue sarcoma of the extremity or trunk
- c. Identify those factors associated with resectability of soft tissue sarcomas based on extent of disease, including the role of reconstruction and the use of neoadjuvant therapy
- d. Construct a treatment plan for the multidisciplinary care of sarcoma patients, taking the role of systemic treatment, radiation therapy, and surgical resection into account
- e. Establish a treatment plan for the post-operative management of sarcoma patients, including interpretation of pathology results and a plan for surveillance
- f. Identify post-operative complications including bleeding, hematoma, and compromise of end organ function and provide safe and effective initial management of complications

## **4. Tumor Immunology and Immunotherapy**

- a. Identify the key components and mechanisms by which the immune system mounts an immune response against tumors
- b. Describe how tumors evade immunity
- c. Discuss immunosuppression and the importance of self-regulation of immune responses
- d. Illustrate examples of tumor specific antigens and tumor associated antigens and cite examples
- e. Classify clinical approaches to immunotherapy include passive immunotherapy (adoptive Tcell therapy or monoclonal antibodies) and active immunotherapy (vaccines, cytokines, check-point regulators)

## **5. Clinical Trial Design and Statistics**

- a. Outline the basic tenets of the scientific method as applied to clinical research and outline the steps in the generation of a research hypothesis from clinical questions or observations
- b. Describe the basic statistical principles, concepts and methods for clinical data analysis and reporting
- c. Define both statistical and clinical significance in clinical research, and describe both Type I (alpha) and Type II (beta) errors
- d. Evaluate experimental design in planned research, including randomization, power calculations, sampling error, and potential sources of bias

## **Systems-Based Practice:**

By the end of the Surgical Oncology rotation, the HO III resident will be able to:

1. Demonstrate an understanding of the roles of the various components of the tumor board in the multidisciplinary care of cancer patients
2. Analyze a cancer risk assessment, recommend genetic counseling and potential genetic testing and incorporate this information into a surgical plan
3. Recommend a surveillance strategy for patients with breast cancer, melanoma, Merkel cell carcinoma or soft tissue sarcoma, coordinated among surgery, medical oncology and primary care
4. Apply their knowledge of systems in delivering optimal health care, including inferring how "system problems" contribute to quality problems
5. Explain 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
6. Describe how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources
7. Define cost-effective health care and discuss how to address issues of resource allocation without compromising quality of care
8. Discuss the economic and psychosocial issues associated with malignant disease
9. Advocate for quality patient care and assist patients in dealing with system complexities
10. Collaborate with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance

## **Practice-Based Learning and Improvement:**

By the end of the Surgical Oncology rotation, the HO III resident will be able to:

1. Analyze outcomes in oncology and perform practice-based improvement activities using a systematic methodology
2. Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems
3. Obtain and use information about their own population of patients and the larger population from which their patients are drawn

## **Professionalism:**

By the end of the Surgical Oncology rotation, the HO III resident will be able to:

1. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of cancer patients; accountability to patients, society, and the profession; and a commitment to excellence and on-going professional development
2. Demonstrate appropriate sensitivity to the patient with cancer, and understand how their needs may be different from other patients
3. Recognize patient autonomy in oncologic decision making, particularly with respect to surgical decision making and the acceptance or rejection of adjuvant therapy
4. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices

## **Interpersonal and Communication Skills:**

By the end of the Surgical Oncology rotation, the HO III resident will be able to:

1. Create and sustain a therapeutic and ethically sound relationship with patients
2. Demonstrate and employ effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills
3. Work in a cooperative manner with all members of the oncology team, being sensitive to their roles and abilities
4. Give and receive advice in a manner that is consistent with the harmonious operation of the health care team

# Surgical Oncology Service (White)

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## House Officer IV

**Goal:** The goal of the HO IV Surgical Oncology rotation is to solidify general surgical knowledge and operative experience and provide more intense exposure to complex surgical oncology including retroperitoneal sarcoma, gastrointestinal and pancreaticobiliary resections. Residents at the HO IV level should be increasingly independent in complex surgical oncology procedures, including re-operative abdominal or soft tissue procedures and advanced laparoscopy in oncology. The HO IV rotation will be where residents increase participation in multidisciplinary tumor boards, develop multimodality treatment plans for more complex oncologic patients, including patients with locally advanced, recurrent or metastatic disease. The HO IV Surgical Oncology rotation will also provide additional education in clinical trial design and statistical analysis.

### Learning Objectives:

#### Patient Care:

By the end of the Surgical Oncology rotation, the HO IV resident will be able to:

1. Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families
2. Gather, organize, analyze, and integrate essential and accurate information about their patients, especially regarding locally advanced breast cancer (including inflammatory), locally advanced melanoma (including in-transit disease and stage IV disease), and both soft tissue and intra-abdominal/retroperitoneal sarcomas
3. Construct patient-centered treatment plans based on analysis of diagnostic information, up-to-date scientific evidence, and clinical judgment
4. Counsel and educate patients and their families on the risks and benefits of treatment on this service, especially regarding locally advanced and inflammatory breast cancer, advanced melanoma, extremity and retroperitoneal sarcoma and upper gastrointestinal malignancies with particular attention to the use of neoadjuvant and adjuvant therapies
5. With appropriate supervision and intraoperative assistance, perform surgical procedures considered essential for the area of practice, with particular attention to the following:
  - a. Superficial (inguinofemoral) and deep (iliac/pelvic) node dissection
  - b. Popliteal node dissection
  - c. Radical resection of an extremity or trunk soft tissue sarcoma
  - d. Resection of a retroperitoneal sarcoma
  - e. Skin-sparing and nipple-areolar sparing mastectomies
6. Manage complex abdominal wounds including stomas, open abdominal wounds and enterocutaneous fistulas
7. Use information technology to support patient care decisions and patient education in a multidisciplinary fashion
8. With appropriate supervision, counsel patients and their families about advanced directives and end of life decision making
9. Create a productive and positive team environment, focusing on inter-professional and multidisciplinary care of the complex surgical oncology patient

## Medical Knowledge:

By the end of the Surgical Oncology rotation, the HO IV resident will be able to:

### 1. Sarcoma

- a. Create a treatment plan based on their knowledge histologic subtypes of soft tissue sarcoma (including gastrointestinal stromal tumors), with attention to differences encountered in abdominal/retroperitoneal tumors compared to extremity/truncal lesions
- b. Identify anatomic factors dictating resectability or borderline resectability of sarcomas based on extent of disease, including defining the role of reconstruction with complex advancement flaps or soft tissue (e.g., fascia, muscle) flaps
- c. Identify the components of an extent of disease or staging workup and demonstrate the ability to use findings to inform decision making
- d. Construct a treatment plan for the multidisciplinary care of sarcoma patients, taking the role of systemic treatment, radiation therapy, and surgical resection into account
- e. Identify eligibility for enrollment to clinical trials, understanding the differences in trial design
- f. Construct an operative plan for patients who have received neoadjuvant treatment, taking the anatomic and physiologic changes from such treatment into account
- g. Establish a treatment plan for the post-operative management of sarcoma patients, including interpretation of pathology results (e.g., margins, treatment effect) and a plan for surveillance
- h. Identify post-operative complications including bleeding, hematoma, and compromise of end organ function and provide safe and effective initial management of complications

### 2. Cutaneous Oncology

- a. Outline the complete evaluation and management of patients with in-transit melanoma including:
  - Pre-operative evaluation including radiologic studies
  - Assessing resectability versus alternate local, regional or systemic options
  - Indications for intra-lesional therapy
  - Indications and risks of isolated limb infusion and isolated limb perfusion versus systemic treatment
  - Assessment of the regional lymph nodes in the patient with in-transit disease of the extremity
- b. Outline the management of the patient presenting with unresectable or borderline resectable regional disease in the absence of clear stage IV disease including:
  - Staging evaluation including radiologic studies
  - Indications and timing of neoadjuvant therapies for BRAF mutant and wild-type patients
  - The role of surgery for palliation
- c. Describe the surgical considerations in the management of the patient with recurrent axillary or inguinal melanoma
- d. Describe the role of surgery as a component of a multidisciplinary approach to metastatic melanoma including assessment of the extent of distant disease, disease-free interval, role of palliative versus curative surgery and timing of surgery in relation to systemic therapies
- e. Identify eligibility for enrollment to clinical trials, understanding the differences in trial design
- f. Create a surgical treatment plan for a patient with Merkel cell carcinoma based on the clinicopathologic characteristics, extent of disease studies and patient preferences, with special consideration of multidisciplinary care

### 3. Breast Cancer

- a. Construct a surgical plan for patients with breast cancer based on history and physical, imaging studies, patient preferences and up to date evidence-based medicine
- b. Outline an algorithm for evaluation and treatment of locally advanced or inflammatory breast cancer concordant with NCCN guidelines
- c. Compose a multi-disciplinary approach to the patient with an in-breast or chest wall recurrence, or regional recurrence of breast cancer
- d. Evaluate the role of surgery in the management of stage IV breast cancer, including the resection of metastases and the role of local-regional therapy in patients with stage IV disease
- e. Identify eligibility for enrollment to clinical trials, understanding the differences in trial design

### 4. Tumor Immunology and Immunotherapy

- a. Compare different strategies for generation an anti-tumor immune response
- b. Summarize the biology involved in tumor vaccination strategies and describe the potential

- benefits of active specific immunotherapy in cancer
- c. Describe the principles of passive immunotherapy, including both adoptive T-cell immunotherapy and the use of monoclonal antibodies, including their advantages and disadvantages
- d. Describe the biology of check-point immune regulation and cite examples in clinical use
- e. Integrate various immunotherapeutic approaches into a comprehensive picture of the immune response and support the role of combination immunotherapy

#### **5. Clinical Trial Design and Statistics**

- a. Summarize the basic tenets of the Scientific Method as applied to clinical oncology research and outline the steps in the generation of a research hypothesis from clinical questions or observations
- b. Describe the impact of randomization in study design and the essential design issues of prospective randomized clinical trials
- c. Appraise prospective and retrospective research in clinical oncology based on statistical principles, concepts and methods for clinical data analysis
- d. Defend the use of the intention to treat analysis when considering clinical trial results
- e. Identify sources of potential bias in study designs and recommend strategies for reducing those biases

### **Practice-Based Learning and Improvement:**

By the end of the Surgical Oncology rotation, the HO IV resident will be able to:

1. Analyze practice experience and perform practice-based improvement activities using a systematic methodology
2. Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems
3. When given online resources, conduct an effective literature search about a given oncology surgery topic
4. Design a systematic approach to evaluate the results of one's own practice
5. Apply their knowledge information technology to manage information, access on-line medical information; and support their own education

### **Professionalism:**

By the end of the Surgical Oncology rotation, the HO IV resident will be able to:

1. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supersedes self-interest; accountability to patients, society, and the profession; and a commitment to excellence and on-going professional development
2. Demonstrate appropriate sensitivity to the obese patient population, and understand how their needs may be different from other patients
3. Recognize the importance of timely record keeping and its impact on the quality of general surgery care
4. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices
5. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities

### **Interpersonal and Communication Skills:**

By the end of the Surgical Oncology rotation, the HO IV resident will be able to:

1. Create and sustain a therapeutic and ethically sound relationship with patients
2. Demonstrate and employ effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills
3. Work effectively with others as a member or leader of a health care team or other professional group
4. Interview and evaluate the patient, especially the newly-diagnosed cancer patient

# Surgical Oncology Service (White)

## House Officer V

**Goal:** The goal of the HO V Surgical Oncology rotation is to refine and master surgical knowledge/operative experience and provide concentrated exposure to complex surgical oncology, including upper gastrointestinal cancers and intra-abdominal/retroperitoneal sarcomas. In addition, residents at the HO V level should be able to evaluate patients with advanced cancers and appraise factors which influence decision making related to metastasectomy and palliative procedures. Residents at the HO V level should be proficient with open and laparoscopic approaches for basic and advanced procedures, including cancer-directed operations done with curative intent, en bloc resections for locally advanced cancers, and effective means of palliation/supportive care for advanced cancers. The HO V rotation will require residents to lead and interact with a service that includes junior and senior level residents, physician assistants, nurses, dietitians and consulting services in the clinic, inpatient and operating room settings. There is an emphasis on generating effective interprofessional/multidisciplinary cancer care plans.

### Learning Objectives:

#### Patient Care:

By the end of the Surgical Oncology rotation, the HO V resident will be able to:

1. Establish a caring rapport and communicate treatment plans effectively when interacting with patients and their families
2. Gather, organize, analyze, and integrate essential and accurate information about their patients, especially regarding upper gastrointestinal cancers and intra-abdominal/retroperitoneal sarcomas
3. Construct patient-centered treatment plans based on analysis of diagnostic information, up-to-date scientific evidence, and clinical judgment
4. Counsel and educate patients and their families on the risks and benefits of treatment on this service, especially regarding upper gastrointestinal cancers and intra-abdominal/retroperitoneal sarcomas and with particular attention to the use of neoadjuvant and adjuvant therapies
5. Use information technology to support patient care decisions and patient education in a multidisciplinary fashion
6. With appropriate indirect supervision and intraoperative assistance, perform competently medical and invasive procedures considered essential for the area of practice, with particular attention to the following:
  - a. Independently perform complete laparotomy or laparoscopy to evaluate for extent of metastatic disease
  - b. Complete en bloc resection of mesenteric/intra-abdominal/retroperitoneal tumors with minimal/moderate assistance
  - c. Complete dissection along major arterial or venous vascular supply to mobilize and remove tumors with minimal assistance
  - d. Complete dissection along nerves to mobilize and remove tumors with minimal assistance
  - e. Independently perform stapled and hand-sewn bowel anastomosis
  - f. Independently perform placement of enteral access tubes
  - g. Demonstrate appropriate steps to obtain exposure and access for pelvic procedures
  - h. Demonstrate safe and effective intra-peritoneal access for laparoscopic surgery (both Veress needle and open Hassan trocar approaches)
  - i. Demonstrate safe and effective port placement for all basic laparoscopic and advanced procedures
7. With appropriate supervision, counsel patients and their families about advanced directives and end of life decision making

8. Create a productive and positive team environment, focusing on interprofessional and multidisciplinary care of the complex surgical oncology patient

## Medical Knowledge:

By the end of the Surgical Oncology rotation, the HO V resident will be able to:

### 1. Upper Gastrointestinal Cancers

- a. Create a treatment plan based on an extent of disease or staging workup, including indications and contraindications for advanced imaging modalities
- b. Identify indications for diagnostic laparoscopy and prognostic implications of peritoneal disease
- c. Identify indications for advanced endoscopy in the staging workup of upper gastrointestinal cancers
- d. Identify anatomic factors dictating resectability or borderline resectability of upper gastrointestinal cancers
- e. Identify the components of D1 and D2 lymphadenectomy for gastric cancer
- f. Construct a treatment plan for the multidisciplinary care of upper gastrointestinal cancer patients, taking the role of systemic treatment, radiation therapy, and surgical resection into account
- g. Identify eligibility for enrollment to clinical trials, understanding the differences in trial design
- h. Construct an operative plan for patients who have received neoadjuvant treatment, taking the anatomic and physiologic changes from such treatment into account
- i. Establish a treatment plan for the post-operative management of upper gastrointestinal patients, including interpretation of pathology results (e.g., margins, treatment effect) and a plan for surveillance
- j. Identify post-operative complications including seroma, hematoma, delayed return of bowel function, anastomotic leak (bowel, biliary tree), intraabdominal abscess, and compromise of end organ function and provide safe and effective initial management of complications

### 2. Carcinomatosis/Advanced Cancers

- a. Create a treatment plan based on their knowledge histologic subtypes and other clinicopathologic characteristics of the primary lesion, with attention to implications for prognosis and extent of treatment options
- b. Identify factors dictating when metastasectomy has a role in prolonging survival
- c. Construct an operative plan for patients who have systemic manifestations of recurrent/metastatic disease, taking the implications of complex reoperative surgery into account
- d. Identify eligibility for enrollment to clinical trials, understanding the differences in trial design
- e. Identify indications for supportive care, palliative care, and hospice care
- f. Establish a treatment plan for the post-operative management of patients, including a plan for expectant management versus palliative chemotherapy or radiation therapy
- g. Identify post-operative complications and provide safe and effective initial management of complications, including inability to palliative symptoms with surgical management

### 3. Rare Soft Tissue Neoplasms

- a. Create a treatment plan based on their knowledge histologic subtypes of rare soft tissue neoplasms (e.g., desmoid fibromatosis, dermatofibrosarcoma protuberans), with attention to prognostic differences based on anatomic location of disease
- b. Identify anatomic factors dictating resectability or borderline resectability of these tumors based on extent of disease
- c. Construct an operative plan for patients who have had multiple prior resections, taking the implications of recurrent disease into account
- d. Establish a treatment plan for the post-operative management of patients, including interpretation of pathology results (e.g., margins, treatment effect) and a plan for surveillance
- e. Identify post-operative complications and provide safe and effective initial management of complications

## **Systems-Based Practice:**

By the end of the Surgical Oncology rotation, the HO V resident will be able to:

1. Appraise the system and its role in delivering optimal health care, including inferring whether “system problems” contribute to quality deficits
2. Integrate systems knowledge to understand how aspects of the health care context, i.e., the health care organization, the larger society, affect their own practice
3. Evaluate how different medical practice and delivery systems play a role in health care systems, including differing methods of controlling health care costs and allocating resources
4. Demonstrate responsible, cost-effective health care and discuss how to address issues of resource allocation without compromising quality of care
5. Advocate for quality patient care and assist patients in dealing with system complexities
6. Collaborate with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance; in particular the multidisciplinary approach to morbid obesity, issues affecting access to care and long-term follow up

## **Practice-Based Learning and Improvement:**

By the end of the Surgical Oncology rotation, the HO V resident will be able to:

1. Analyze practice experience and perform practice-based improvement activities using a systematic methodology
2. Locate, appraise, and assimilate evidence from scientific studies related to their patients’ health problems
3. When given online resources, conduct an effective literature search about a given surgical oncology topic
4. Obtain and use information about their own population of patients and the larger population from which their patients are drawn, including knowledge of the Michigan Surgical Quality Collaborative and National Cancer Data Base/cancer registry reporting platforms
5. Design a systematic approach to evaluate the results of one’s own practice
6. Critically evaluate experimental design and interpret results in published literature (or planned research), including true randomization, sampling error, blinded studies, prospective versus retrospective evaluations, and the advantages and weaknesses of each; knows the distinction between dependent and independent variables under evaluation and knows the meaning of confidence intervals or “P” value in suggesting statistical significance; knows how to interpret survival analyses
7. Apply their knowledge information technology to manage information, access on-line medical information; and support their own education

## **Professionalism:**

By the end of the Surgical Oncology rotation, the HO V resident will be able to:

1. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supersedes self-interest; accountability to patients, society, and the profession; and a commitment to excellence and on-going professional development
2. Demonstrate appropriate sensitivity to the cancer population, and understand how their needs may be different from other patients, especially when facing a diagnosis of advanced cancer with attendant end of life issues
3. Recognize the importance of timely record keeping and accurate documentation and its impact on the quality of general surgical care
4. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices
5. Demonstrate sensitivity and responsiveness to patients’ race, ethnicity, culture/religion, age, gender, and disabilities, in particular among patients with advanced cancers

## **Interpersonal and Communication Skills:**

By the end of the Surgical Oncology rotation, the HO V resident will be able to:

1. Create and sustain a therapeutic and ethically sound relationship with patients and their family/caregivers
2. Demonstrate and employ effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills
3. Work effectively with others as a member or leader of an interprofessional/multidisciplinary health care team in multiple settings including the clinic, emergency room, hospital wards and operating room
4. Interview and evaluate patients and assist with complex decision making in the setting of advanced cancers