

UNIVERSITY OF LOUISVILLE HEMATOLOGY/ONCOLOGY ROTATION

INTERNAL MEDICINE RESIDENT CURRICULUM

For PGY 1, 2, and 3 Inpatient/Outpatient elective at U of L Hospital

Developed August, 2013 by Geetika Bhatt, MD

Welcome to the exciting rotation of Medical Oncology and Hematology. The following curriculum is designed to give PGY 1-3 residents an overview of this rotation and its goals. We hope to make your time on this rotation truly educational by creating a stimulating working and learning atmosphere.

Introduction:

Oncology (from the Ancient Greek 'onkos', meaning bulk, mass, or tumor, and the suffix -logy, meaning "study of") is a branch of medicine that deals with not just malignant but also benign tumors. Medical Oncology as a specialty was founded when American Society of Clinical Oncology (ASCO) was created in 1965. Cancer is the 2nd leading cause of deaths after cardiovascular diseases and is projected to become the leading cause in the near future. Tremendous improvements in cancer care have led to patients living longer and more being cured than in the past.

The field is ever evolving from initial use of single agent to identification of benefit to multi-agent chemotherapy. Recently the field has greatly benefited from the discovery of biologics and molecular targeted therapies aimed at antigens specific to cancer cells and inhibiting specific cell cycle pathways (For eg, Crizotinib for ALK+ (Anaplastic Lymphoma Kinase) advanced Non-Small Cell Lung Cancer). These biologics are evolving from 2nd line therapies to being incorporated into 1st line regimens with significant improvement in survival rates.

Despite major advances, the magic bullet for several cancer types still remains elusive and the search continues. The standard of care management changes as and when a new therapy or combination of therapies proves to be superior to the established standard. Medical oncology is a classic example of medicine being a field of lifelong learning.

Goals of Rotation:

Our goal is to ensure that trainees have a rich and varied opportunity to witness and become involved in practicing patient-centered care. This rotation is designed to expose residents to modern oncology principles covering diagnosis, treatment/screening measures, prevention, promising research avenues and controversies of cancer.

Major goals include –

- To gain an understanding of the multiple manifestations of tumors and the implications of a given diagnosis for treatment.
- To gain an understanding of the early detection and screening of the major cancers.
- To understand the approaches in managing solid versus hematologic malignancies.
- To gain an understanding of issues that influence access and quality of care.
- To gain an understanding of the needs and care of the individual patient.
- To gain an understanding of the role clinical trials play in cancer therapy, both in the primary and in the refractory settings.
- To become familiar with current controversies in cancer care.

There are 2 components to your rotation –

a) ***Inpatient:***

- Provide exposure to initial workup, initiation of therapy, management of complications of chemotherapy and also the disease itself.
- To understand the management of medical and oncologic emergencies that can arise from cancer treatment or from its progression.

b) ***Outpatient:***

- Provide exposure to outpatient evaluation and symptom care.
- Provide exposure to multi-modal management of different cancers treated with varying combinations of surgery, radiation therapy, and systemic therapy with chemotherapy and immunotherapy (biologics & targeted agents).
 - To understand the role of various diagnostic tests used in initial evaluation and staging.
 - To assess the response to treatments and to detect changes requiring inpatient admission or therapy modification.
- Post-therapy follow up and surveillance of various cancers.

Multi-disciplinary Care Model:

Oncology serves as an integration of several medical specialties and sub-specialties working in tandem to achieve best possible outcomes. Broadly the core specialties involved in treatment administration are Medical Oncology/Hematology, Surgical Oncology and Radiation Oncology. Other integrated specialties include Pathology, Diagnostic Radiology, Nuclear Medicine, Palliative Medicine and Hospice Care, and several others depending on the type of primary cancer.

At the James Graham Brown Cancer Center (BCC), several multi-disciplinary cancer care clinics have been established to provide comprehensive one-stop care of tumors including those of Head and Neck, Lung, Gastroenterology, Gynecology, Genitourinary, Melanoma, Brain, Leukemia and Lymphoma. Pediatric tumors are treated at Kosair Children's Hospital.

Each multi-disciplinary team has a patient care coordinator who is typically an Oncology Certified Nurse (OCN). The care coordinator quarterbackes the team and serves as the channel for patient communication and scheduling. Clinics are held on assigned days of the week with all involved specialties participating and consulting together to provide the best treatment recommendation. The patient usually walks out of the clinic with clear delineated management recommendations and treatment schedule.

Special Considerations for Oncology Patients:

- Recognizing the rationale behind treatment in both curative and palliative situations.
- Understand patient and family expectations, taking utmost care to provide patient-specific care.
- Cancer care in different age-groups like young and adolescents (fertility preservation) or in the elderly (medical co-morbidities).
- Understand short and long-term complications of cancer (eg, cancer pain, cachexia, etc) and also of its therapy, including the common side effects of chemotherapy agents (eg, chemotherapy induced nausea and vomiting, sterility, etc).

Patient Evaluation:

A thorough and complete ***history and physical exam*** is always the first and most informative step. ***Definitive diagnosis*** of cancer is by *cytology or biopsy*, usually of lymph nodes or the tumor mass itself. A variety of tests including serum tumor markers, DNA markers and cell membrane markers (genetic testing) are also useful depending on cancer type. ***Staging*** is the next step after diagnosis, is done using the above findings along with pertinent imaging studies like CT, MRI, PET and bone scans. ***Tumor, Node***

and Metastasis (TNM) staging is assigned using the *American Joint Committee on Cancer (AJCC)* manual which is currently in its 7th edition as of 2010. Imaging scans are also routinely used for post-treatment surveillance. The **NCCN guidelines** are an extremely valuable tool to help guide the staging, treatment scheme and follow up care of patients. An NCCN app is also available to be used on tablets and smart phones for quick reference.

Treatment Overview:

Cancer treatment requires the expertise of different modalities and most patients are managed using multi-disciplinary approach as outlined above. Therapy can be curative or palliative in intent. The goal of curative therapy is to achieve *complete cure* where possible or maximal disease free survival. Palliative therapy aims at symptom and pain control with the main goal being to improve the quality of life.

The exact treatment is decided based on the stage of disease and is usually chemotherapy, radiation therapy or surgery either alone or in combination with each other. The patients are discussed during the multimodality conferences and the most suitable treatment plan is devised. Consideration is always given to evaluate the patient for enrollment in a suitable on-going clinical trial.

Fundamentals of Therapy: Chemo/Targeted therapies broadly include one or more of the following phases – induction, maintenance and consolidation depending on cancer type. Chemo intent can be either **Adjuvant therapy**- given after surgery or radiation (RT) (eg, curative in breast cancer), **Neo-adjuvant therapy**- given before surgery or RT to reduce tumor burden, **Concurrent**- given along with RT or purely **Palliative**. In cases of relapsed or progressive disease, patients may be treated with third and fourth line chemotherapy agent or enrolled in a clinical trial after failure of first and second line therapies. Dosing of chemotherapies is usually based on body-mass index (BMI) and adjustments may be necessary depending on renal function. Some agents are dosed based on pharmacodynamics- *Area Under Curve (AUC)*.

While chemo/targeted therapies are **systemic agents** and are excellent at eradicating micro-metastases, they may not have an adequate response on bulky tumors and hence a combination of an effective **local therapy like surgery or RT** is essential to achieve a cure. The best timing and sequencing of the 3 modalities has been the subject of several randomized trials and is continuously evolving.

Surgery is performed by site-specific surgeons having specialized training in *Surgical Oncology*. Patient survival outcomes can vary based on a gross total resection (GTR) vs. Sub-total resection (STR) vs. Biopsy only. This also has effect on choice of other subsequent therapies. Evaluation of lymph nodes and margin status apart from several other adverse prognostic factors (eg, margins status, lympho-vascular space invasion (LVSI), peri-neural invasion (PNI), etc) is performed by specialized pathologists.

Radiation Therapy is delivered by the *Radiation Oncologists*. RT is dosed by the total Gray (Gy) received. Radiation is delivered in fractions per week (usually Mon-Fri; 5/week) by various methods- Intensity modulated radiotherapy (IMRT), Brachytherapy (radiotherapy beads inserted into the body), Stereotactic radiosurgery (SRS). Usual dose is at 2 Gy per fraction to total about 20-30 Gy for palliation and 60-70 Gy for definitive intents.

End-of-life care:

This provides physical, mental, and emotional comfort, as well as social support, to people who are living with and dying of advanced illness. Emphasis is on providing good quality of life and controlling symptoms of nausea, constipation and pain. Research has shown that early talk of end-of-life care with patients helps in increasing coping with the illness and reduces stress. Some patients and their family may still want to be treated by toxic chemotherapy even in advanced progressive cancer despite of futility of treatment. It is the moral responsibility of the treating oncologists to give them a fair understanding of the expected response prior to embarking on such paths so that a well-informed decision is made.

Learning Objectives:

Residents will be expected to observe, learn and demonstrate the 6 core competencies below established by the ACGME. These will be accomplished via inpatient rounds, outpatient experience, consultations, conferences, and Grand Rounds.

1. **Patient care:**

- Competence in hematology/oncology-targeted history and exam.
- Ability to begin initial workup of common hematological problems
- Understanding of:
 - Indications for heme/onc referral
 - Indications, contraindications, and after care of commonly utilized diagnostic evaluations (bone scans, CT, PET scans, biopsies)
 - Acquire a history in a precise, logical and efficient manner
 - Detect subtle physical findings

2. **Medical Knowledge:**

- Terms used in Oncology- adjuvant, neo-adjuvant chemotherapy, relapse, remission, etc.
- Basic evaluation of a peripheral blood smear - ***Diagnosis from the Blood Smear.*** Bain BJ. *N Engl J Med* 2005; 353:498-507. PMID: [16079373](#).
- Indications for bone marrow biopsy - ***Bone Marrow Aspiration and Biopsy.*** Malempati, Joshi, Lai, Braner, Tegtmeier. *N Engl J Med* 2009; 361:e28. PMID: [19812396](#).
- Approach to the patient with –
 - a. Acute anemia –
 - i. ***Anemia in adults: a contemporary approach to diagnosis.*** Tefferi A. *Mayo Clin Proc.* 2003 Oct;78(10):1274-80. Review. PMID: [14531486](#).
 - ii. ***Anemia of Chronic Disease.*** Weiss, Goodnough. *N Engl J Med* 2005; 352:1011-1023. PMID: [15758012](#).
 - iii. ***Pathophysiology of Immune Hemolytic Anemia.*** Frank, Schreiber, Atkinson, Jaffe. *Ann Intern Med.* 1977;87(2):210-222. PMID: 329729.
 - iv. ***Immunohematologic Disorders.*** Alan Winkelstein, Joseph E. Kiss. *JAMA.* 1997;278(22):1982-1992. PMID: [9396661](#).
 - b. Pancytopenia-
 - i. ***How to interpret and pursue an abnormal complete blood cell count in adults.*** Tefferi A, Hanson C, Inwards D. *Mayo Clin Proc.* 2005 Jul;80(7):923-36. PMID: [16007898](#).
 - ii. ***Myelofibrosis with Myeloid Metaplasia.*** Tefferi A. *N Engl J Med* 2000; 342:1255-1265. PMID: [10781623](#).
 - iii. ***Myelodysplastic Syndromes.*** Ayalew Tefferi, James W. Vardiman. *N Engl J Med* 2009; 361:1872-1885. PMID: [19890130](#).
 - iv. ***Acquired Aplastic Anemia.*** Young NS. *JAMA.* 1999; 282(3): 271-278. doi:10.1001/jama.282.3.271. PMID: [10422997](#).
 - v. ***Vitamin B12 Deficiency.*** Stabler SP. *N Engl J Med* 2013; 368:149-160. PMID-[23301732](#).

- c. Disorders of hemostasis -
 - i. **A Bloody Mystery.** Cuker, Connors, Katz, Levy, Loscalzo. *N Engl J Med* 2009; 361:1887-1894. PMID: [19890132](#).
 - ii. **Treatment of von Willebrand's Disease.** Pier Mannuccio Mannucci. *N Engl J Med* 2004; 351:683-694. PMID: [15306670](#).
- d. Thrombocytopenia –
 - i. **Drug-Induced Immune Thrombocytopenia.** Richard H. Aster, M.D., and Daniel W. Bougie, Ph.D. *N Engl J Med* 2007; 357:580-587. PMID: [17687133](#).
 - ii. **Thrombotic Thrombocytopenic Purpura.** George JN. *N Engl J Med* 2006; 354:1927-1935. PMID: [16672704](#).
 - iii. **Immune Thrombocytopenic Purpura.** Douglas B. Cines, M.D., and Victor S. Blanchette, M.B., B.Chir. *N Engl J Med* 2002; 346:995-1008. PMID: [11919310](#).
- e. Thrombotic disorders -
 - i. **Mechanisms of Thrombus Formation.** Furie B, Furie B. *N Engl J Med* 2008; 359:938-949. PMID: [18753650](#).
 - ii. **Heparin-Induced Thrombocytopenia.** Arepally, Ortel. *N Engl J Med* 2006; 355:809-817. PMID: [16928996](#).
 - iii. **The Pathogenesis of the Antiphospholipid Syndrome.** Giannakopoulos, Krilis, *N Engl J Med* 2013; 368:1033-1044. PMID: [23484830](#).
 - iv. **Thrombotic Microangiopathies.** Joel L. Moake. *N Engl J Med* 2002; 347:589-600. PMID: [12192020](#).
 - v. **Hypercoagulability syndromes.** Thomas R. *Arch Intern Med*. 2001;161(20):2433-2439. PMID: [11700155](#).
- Hemoglobin disorders especially
 - a. Sickle Cell Disease – diagnosis and management of sickle cell crisis and indications of exchange transfusions - **Pulmonary Complications of Sickle Cell Disease.** Mark T. Gladwin, M.D., and Elliott Vichinsky, M.D. *N Engl J Med* 2008; 359:2254-2265. PMID: [19020327](#).
 - b. **β -Thalassemia.** Rund, Rachmilewitz. *N Engl J Med* 2005; 353:1135-1146. PMID: [16162884](#).
 - c. **Narrative Review: Paroxysmal Nocturnal Hemoglobinuria: The Physiology of Complement-Related Hemolytic Anemia.** Robert A. Brodsky, MD. *Ann Intern Med*. 2008;148(8):587-595. PMID: [18413620](#).
- Multiple myeloma and related disorders
 - a. Multiple Myeloma - **Multiple myeloma.** Palumbo A, Anderson K. *N Engl J Med*. 2011 Mar 17;364(11):1046-60. doi: 10.1056/NEJMra1011442. PMID: [21410373](#).
 - b. MGUS - **Clinical practice. Monoclonal gammopathy of undetermined significance.** Bladé J. *N Engl J Med*. 2006 Dec 28;355(26):2765-70. PMID: [17192542](#).
- Presentation, complications and post therapy surveillance of lymphoma
 - a. **Early-Stage Hodgkin's Lymphoma.** Armitage. *N Engl J Med* 2010; 363:653-662. PMID: [23208168](#).
- Common presentation, initial workup and tests, and common complications of cancers like
 - a. Lung cancer –

- i. **Multidisciplinary Management of Lung Cancer.** Alexander Spira, David S. Ettinger. *N Engl J Med* 2004; 350:379-392. PMID: [14736930](#).
 - ii. **Results of Initial Low-Dose Computed Tomographic Screening for Lung Cancer.** The National Lung Screening Trial Research Team. *N Engl J Med* 2013; 368:1980-1991. PMID: [23697514](#).
 - b. Gastric cancer –
 - i. **Gastric Carcinoma.** Fuchs, Mayer. *N Engl J Med* 1995; 333:32-41. PMID: [7776992](#).
 - ii. **Helicobacter pylori: gastric cancer and beyond.** Polk DB, Peek RM Jr. *Nat Rev Cancer*. 2010 Jun;10(6):403-14. PMID: [20495574](#).
 - c. Esophagus –
 - i. **Esophageal Cancer.** Peter C. Enzinger, M.D., and Robert J. Mayer. *N Engl J Med* 2003; 349:2241-2252. PMID: [14657432](#).
 - ii. **Upper Endoscopy for Gastroesophageal Reflux Disease: Best Practice Advice From the Clinical Guidelines Committee of the American College of Physicians.** *Ann Intern Med*. 2012;157(11):808-816. PMID: [23208168](#).
 - d. Breast cancer –
 - i. **Follow-up of Patients with Early Breast Cancer.** Daniel F. Hayes. *N Engl J Med* 2007; 356:2505-2513. PMID: [17568031](#).
 - ii. **Ductal Carcinoma in Situ of the Breast.** Burstein, Polyak, Wong, Lester, Kaelin. *N Engl J Med* 2004; 350:1430-1441. PMID: [15070793](#).
- Cancer of unknown primary site - initial workup strategy - **Diagnostic work-up of carcinoma of unknown primary: from immunohistochemistry to molecular profiling.** Oien KA, Dennis JL. *Ann Oncol*. 2012 Sep;23 Suppl 10:x271-7. PMID: [22987975](#).
- Prevention and management of common complications of chemotherapy, particularly
 - a. Febrile neutropenia –
 - i. **How We Treat Febrile Neutropenia in Patients Receiving Cancer Chemotherapy.** Gary H. Lyman, and Kenneth V. I. Rolston. *J. Oncol. Pract* 2010 6:149-152. PMID: [20808559](#).
 - ii. **Colony-Stimulating Factors for Febrile Neutropenia during Cancer Therapy,** Bennett CL, Djulbegovic B, Norris LB, Armitage JO. *N Engl J Med* 2013; 368:1131-1139. PMID: [23514290](#).
 - b. Hypercalcemia - **Hypercalcemia Associated with Cancer.** Stewart AF. *N Engl J Med* 2005; 352:373-379. PMID: [15673803](#).
 - c. Tumor Lysis Syndrome - **The Tumor Lysis Syndrome.** Howard, Pui. *N Engl J Med* 2011; 364:1844-1854. PMID: [21561350](#).
- Recognition and treatment of common paraneoplastic syndromes.
 - a. **Paraneoplastic Syndromes Involving the Nervous System.** Darnell RD, Posner JB. *N Engl J Med* 2003; 349:1543-1554. PMID: [14561798](#)
 - b. **Tumor-Induced Osteomalacia.** Jan de Beur S. *JAMA*. 2005;294(10):1260-1267. doi:10.1001/jama.294.10.1260. PMID: [16160135](#)
- Bone Marrow Transplantation - **Hematopoietic Stem-Cell Transplantation.** Copelan EA. *N Engl J Med* 2006; 354:1813-1826. PMID: [16641398](#)

- Understand concept of multidisciplinary care, particularly regarding contributions of medical, radiation, and surgical oncology in therapy.
 - a. ***Teams: Communication in Multidisciplinary Care.*** *Penson RT, Kyriakou H, Zuckerman D, Chabner, Lynch Jr. PMID: [16720852](#).*

- 3. **Practice Based Learning and Improvement:**
 - Utilize available resources to make timely and appropriate diagnostic decisions with the help of the fellows.
 - Seek formative feedback, and use it to improve performance.
 - Demonstrate self-motivation to acquire knowledge.
 - Demonstrate knowledge of impact of study design on validity or applicability to individual patient situations
 - Identify knowledge deficits and work to remedy them.

- 4. **Interpersonal and Communication Skills:**
 - Demonstrate ability to interact with other physicians, nursing, and clinic staff, the patients and their families in a professional, respectful and effective manner.
 - Keep legible, complete and timely medical records and dictations.
 - Identify the questions and wishes of the consulting physician.
 - Demonstrate competence in oral presentation.
 - PGY-2 & 3 residents will also
 - Facilitate education of other health care professionals.
 - Demonstrate the ability to initiate goals of care discussion and communicate bad news in a caring and appropriate manner.

 - **Professionalism:**
 - Demonstrate respect and compassion in interactions with colleagues, patients, and their families, including sensitivity and responsiveness to their race, gender, age, and other defining characteristics.
 - Uphold patient confidentiality and informed consent.
 - Recognize and admit mistakes and notify the attending, and (when appropriate, with guidance from the attending) the patient when mistakes are found.

- 5. **Systems Based Practice:**
 - Become familiar with the practice of inpatient hematology/oncology and recognize individualized patient care in the outpatient setting.
 - Effectively coordinate care with other health care professionals in the multimodality setting of cancer treatment.
 - Recognizing the balance of cancer treatment and quality of life of cancer patients.

Educational Resources:

- Harrison's Textbook of Internal Medicine - Oncology section
- MKSAP - Hematology/Oncology section

- Teaching cases and image slides available at www.hematology.org. Click on education and careers, then on either teaching cases or images.
- NCCN guidelines for all cancers available at http://www.nccn.org/professionals/physician_gls/f_guidelines.asp
- NCCN app for smart phones and tablets is extremely helpful and handy
- AJCC Staging Manual – 7th edition, 2010.
- Search cancer literature and review articles at <http://www.cancer.gov/cancertopics/litsearch> and <http://www.nejm.org/oncology-hematology>
- Cancer glossary available at <http://www.cancer.org/cancer/cancerglossary/index>
- www.uptodate.com

Major Journals: Suggested journals for references include –

- Journal of Clinical Oncology (JCO - Official journal of ASCO)
- New England Journal of Medicine (NEJM)
- The Lancet
- Lancet Oncology
- Journal of the American Medical Association (JAMA)
- Cancer
- American Journal of Clinical Oncology (AJCO)

Additional Reading and Useful Resources:

- **Research at Brown Cancer Center** - <http://www.browncancercenter.org/research/>
- Latest research updates available at – <http://www.cancer.gov/newscenter> and <http://www.cancer.org/research/acsresearchupdates/index>
- Comprehensive cancer information is available at the website of the National Cancer Institute (NCI) - <http://www.cancer.gov/>
- ASCO educational resource – <http://university.asco.org/>
- Clinical trials information - <http://clinicaltrials.gov/>
- **Controversies in Oncology:** <http://connection.asco.org/magazine/category.aspx?categoryid=122>
Some examples are listed here –
 - HPV vaccination for males
 - Vaccines for solid tumors
 - Aspirin intake and survival in breast cancer patients
 - PSA screening for Prostate cancer

Resident Expectations:

- Punctual attendance for all patient care activities, lectures, and regularly scheduled medicine conferences.
- If a personal or family emergency occurs that requires absence or tardiness, call CMR ASAP to arrange any necessary coverage, including continuity clinic, as well as the attending and fellow.
- Attending Heme/Onc conferences and 1 half day of Oncology clinic per week. Please see the conference/clinic schedule below.

Resident Work Routine:

Inpatient:

- Typical day in the inpatient setting begins with pre-rounding on patients, discussing management plan with the fellows, attending rounds, afternoon conference and seeing consults/ take admissions until 5:00pm with the fellows. Fellow sees and admits patients till 6:00pm.
- Residents pre-round on up to 5 patients and see up to 3 consults/admissions in a day.
- Internal medicine admits patients for Heme/Onc from 6:00pm to 7:00am every day after discussion with the on-call fellow.
- Residents attend all Heme/Onc conferences and 1 half day of clinic per week. Please see the conference/clinic schedule below.
- Residents are required to read about their patients using the available resources.

Outpatient:

- Typical day in the outpatient setting begins at 8.
- Residents see and discuss patients with the attending.
- Residents understand the concept of multimodality clinic where medical oncology, surgical oncology and radiation oncology see and discuss patients together.
- Residents attend all Heme/Onc conferences during this rotation.

Resident Evaluations: As much as we focus on teaching you about Medical Oncology, you too will be teaching us valuable lessons and new insights.

- Residents, fellows and attendings will evaluate each other by using the www.new-innov.com evaluation form.
- Supervising attendings are expected to meet mid-month with rotating residents to discuss their performance to date and give useful suggestions for improvement (i.e. formative feedback).
- House staff log procedures performed via www.new-innov.com

Oncology Faculty and Sub-specialties:

- Dr. Goetz Kloecker: Lung cancer
- Dr. Jason Chesney: Melanoma, Refractory solid tumors
- Dr. Fred Hendler: Hematology, Oncology
- Dr. Dharamvir Jain: Hematology, Breast cancer
- Dr. Donald Miller: Head and Neck cancer, Skin cancer, Melanoma
- Dr. Padmini Moffett: Hematology, Brain tumors, Genitourinary cancer
- Dr. Rebecca Redman: Medical Oncology, Hematology, Gastrointestinal cancer
- Dr. Beth Riley: Hematology, Breast cancer
- Dr. Vivek Sharma : Gastrointestinal cancer
- Dr. Cesar Perez: Head and neck
- Dr. Jorge Rios: Lung cancer
- Dr. Roger Herzig: Hematologic malignancies, Bone Marrow Transplant
- Dr. Geoffrey Herzig: Hematologic malignancies, Bone Marrow Transplant
- Dr. Cesar Rodriguez: Hematologic malignancies, Bone Marrow Transplant

Resident Research:

We realize that each trainee comes with an inquisitive mind full of questions, new ideas and perspectives. Being a very dynamic and evidence based specialty, numerous interesting research opportunities are available. Residents are strongly encouraged to consider and pursue projects of their interest. They could also avail of opportunities to participate in on-going projects with respective attending's and fellows.

Important Contacts:

Dr. Goetz Kloecker – is the Medical/Hematology Oncology Fellowship director and can be reached by email- ghkloe01@louisville.edu or office # 502-562-4246

Erin Parker – Program coordinator Hematology/Oncology, email: elpark03@louisville.edu or office # 502 852-4121

Saira Malik (Program Manager) – can be reached at 502-562-4359 (from 8-5 Monday through Friday). Please call prior to the 1st day of rotation for the specifics of when and where to report.

Oncology Conferences and Clinic Schedule:

	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>
University of Louisville – James Graham Brown Cancer Center (BCC)					
AM clinic (8:00 am-12:00 pm)	Dr. Goetz Kloecker – BCC 2 nd floor Dr. Rebecca Redman – BCC 3 rd floor Hemophilia clinic - Dr. Vivek Sharma - BCC 3 rd floor (1 st Monday of each month)	Dr. Beth Riley - BCC 2 nd floor Dr. Donald Miller / Dr. Jason Chesney - BCC 3 rd floor	Dr. Goetz Kloecker - (Lung-Multimodality) BCC 3 rd floor Dr. Rebecca Redman –BCC 2 nd floor Dr. Dharamvir Jain – BCC 2 nd floor	Multidisciplinary Breast Tumor Board – BCC 4 th floor (Dr. Beth Riley) (8:00 – 9:00am) Dr. Padmini Moffett – BCC 2 nd floor Dr. Beth Riley - BCC 3 rd floor Dr. Roger Herzig - BCC 2 nd floor	Multidisciplinary Head and Neck Tumor Board – BCC 4 th floor (Dr. Rebecca Redman) (8:30-9:30am) Dr. Goetz Kloecker –BCC 2 nd floor Dr. Rebecca Redman – BCC 3 rd floor
Lunch (12:00-1:00pm) (Usually provided at conferences)	Multidisciplinary GI Tumor Board – BCC 4 th floor (Dr. Vivek Sharma)		Multidisciplinary Lung Tumor Board – BCC 4 th floor (Dr. Goetz Kloecker)	Multidisciplinary GU Tumor Board – BCC 4 th floor (Dr. Padmini Moffett)	Med/Onc, Hematology Grand Rounds – Glassroom ACB basement, topic and speaker announced weekly
PM clinic (1:00 pm – 5:00 pm)	Dr. Rebecca Redman - BCC 3 rd floor Dr. Vivek Sharma – BCC 3 rd floor	Dr. Fred Hendler - BCC 2 nd floor		Dr. Beth Riley – BCC 3 rd floor	
4:00-5:00pm	Med/Onc Conference	Core Curriculum	VA Tumor Board		

VA Medical Center					
AM clinic (8:00am- 12:00 pm)	Dr. Dharamvir Jain	Dr. Padmini Moffett Dr. Vivek Sharma	Dr. Fred Hendler VA Tumor Board (4:00- 5:00pm)	No clinic	No clinic

Med/Onc Conference- This is a different type of meeting every week- New patient conference, Translational rounds, Writing club, etc.

Coordinator: Dr. Goetz Kloecker; Location- GYN conference room

Core Curriculum- This meeting is the basics of the Heme/Onc curriculum for fellows.

Coordinator: Dr. Padmini Moffett; Location- ENT conference room.

Multidisciplinary Tumor Board Meetings: These meetings are attended by specialists in medical, surgical and radiation oncology amongst others. The patients seen in clinic are discussed along with their staging, imaging and treatment goals and a treatment plan is drafted during these meetings.