DIVISION OF MEDICAL ONCOLOGY/HEMATOLOGY HANDBOOK
FOR FELLOWS AND RESIDENTS

Written and approved by: Goetz H. Kloeker, MD, MBA, MSPH, FACP.
Director, Hematology/Oncology Fellowship Program

Revised and approved by: Jason Chesney, M.D., Ph.D.
Director, James Graham Brown Cancer Center

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IMPORTANT NAMES AND NUMBERS:

Director, Fellowship Training Program  
Goetz H. Kloecker, M.D., MSPH, MBA, FACP  
Office Phone:  502-562-4246  
Mobile Phone/Pager:  502-693-1206  
Academic Fax:  502-562-6811

Assistant Program Director  
Padmini Moffett MD  502-562-4358

Assistant Program Director  
Adam Rojan MD  502-562-4358

Program Manager  
Saira Malik  502-852-2522

Program Coordinator  
Tahani Abualganam  502-852-4121

Fax  502-852-0012

Fellows/Pager  
Bhandari Shruti, MD  502-421-8432
Amitoj Gill, MD  502-421-6115
Rahul Gosain, MD  502-421-4930
Mohamed Hegazi, MD  502-421-5602
Phuong Ngo, MD  502-421-0728
Shawn Peterson, MD  502-421-7943
Hamza Hashmi, MD  502-421-4402
Danh Cong Pham, MD  502-421-6528
Vikas Singh, MD  502-421-6607

Brown Cancer Center Clinic  502-562-4370
Brown Cancer Center Clinic Fax  502-562-7392
UMA Answering Service  502-949-6292/4679, 812-949-6290
University Hospital, 6 East  502-562-3740

WEEKLY SCHEDULE

Attending Rounds: The attending assigned to inpatient service at each facility will set the time for patient rounds. Rounds on weekends are arranged by the Attending and covering fellow or resident.

Clinics: The outpatient clinics are at the BCC and VA hospital. Fellows are assigned to 2-4 half-day clinics for 3 years. Fellows are required to attend for the duration of their rotation. Fellows are responsible for asking their attending if coverage is needed while on vacation, sick, or business travel leave.

Conferences: Fellows and residents should attend all the conferences. Medicine residents are excused on Wednesday to attend the medicine lectures. Lecture locations are subject to change. Refer to conference flyer. Bolded conferences are mandatory for all fellows. To be in good standing, fellows must maintain at least the minimum attendance requirement (percentages indicated below).

The 2017-2018 conference schedules are posted on the Fellowship Sharepoint Site.  
https://sharepoint.louisville.edu/sites/bcc/fellows/Pages/default.aspx

All Tumor Board Conferences and Friday’s Brown Cancer Center Grand Rounds are CME.

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Location</th>
<th>Title</th>
<th>Faculty Mentor</th>
</tr>
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<td>Monday</td>
<td>12-1p.m.</td>
<td>BCC, 4th Floor</td>
<td>Multidisciplinary GI Tumor Board</td>
<td>Dr. Sharma</td>
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<td>Tuesday</td>
<td>4-5 p.m.</td>
<td>BCC, GYN</td>
<td>Alternates: New Patient Conference, Translational Rounds, Writing Club, Quarterly Fellowship Meetings, Oncology Plus (60% attendance required)</td>
<td>Dr. Rojan</td>
</tr>
<tr>
<td>Thursday</td>
<td>Noon</td>
<td>BCC, ENT</td>
<td>Core Curriculum (60% attendance required)</td>
<td>Dr. Moffett</td>
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A fellow will be assigned every month to coordinate the hematology and medical oncology segment of the Tumor Conference, Multi-Modality Conference and Hematology Conference. The fellow's responsibility will be to be the speaker at each of his/her assigned conferences.

**Brown Cancer Center Grand Rounds:**
- **Fellows are required** to give a 45-minute presentation about an interesting hematology or oncology topic (these will rotate and are pre-assigned). Discussion should include the published literature (unusual, rare and difficult problems or controversies usually are the best). References are a must so do a good literature search that would show your effort. Do not select a broad topic and do not give a “general talk”. Your audience includes med onc and radiation faculty, fellows, researchers and others who already know the basics. The final 10-15 minutes will be for questions. Faculty may also be invited by Dr. Riley to give these lectures and typically will give those in July and August.

**Hematology Morphology Meeting:** Fellows and residents must bring to this meeting all the bone marrow and peripheral blood smears of the patients seen during that week. Morphology and any other interesting hematological problem will be discussed in a friendly low-stress environment. The purpose of this meeting is to learn from our patients.

**New Patient Conference:** Conducted in a morning-report style, fellows and attendings will discuss the basic management and controversies in the management of both solid and liquid tumors.

**Journal Club:** Fellows will review and discuss selected oncology and hematology articles. The fellow is responsible for selecting, reviewing and presenting the article but there must be faculty guidance and involvement.

**Writing Club:** Fellows will use this time to peer review and develop abstracts/manuscripts of their current research projects.

**Translational Rounds:** Fellows are assigned to present “bench to bedside” research.

**Oncology Plus:** Faculty / Chief fellow lead discussion regarding nontraditional aspects of oncology such as health services, outcomes research, and quality.

**ASH SAP Requirement**
Fellows will be required to complete the American Society of Hematology- Self Assessment Program. Fellows will work through the online questions and provide the completion certificate to the program coordinator by March 31st.

**Certificate of Health Care Improvement and QOPI**
Training for QI will be provided by QOPI through ASCO or completion of the Institute of Health Care Improvement Open School certificate (for further questions on IHI contact Dr. Nancy Kubiak and see www.ihi.org)

**Vacation:** Fellows must complete a Vacation form six weeks prior to the requested vacation dates. Coverage for service/clinics/call must be confirmed by the time the form is submitted. Confirmation can be confirmed through email correspondence as long as both parties are included in the email. The attending on service/clinic and the program director must approve the request. Fellows have a vacation balance of 28 days, including weekends, for the academic year.
Fellows must notify the program director, attending, and program coordinator immediately in the case of emergencies in which the fellow must take time off. In these instances, vacation days will be used.

- Vacation days must be recorded as leave in MedHub duty hour logs.
- Fellows are responsible for asking their attending if clinic coverage is needed while on vacation, sick, or business travel leave.

**Educational allowances:** The fellowship program may support fellows to attend a national meeting (ASH or ASCO) every year at the discretion of the program director. Effective July 1, 2012, the maximum stipend is $2500.00/year/fellow. The program director may give an extra travel-grant for a fellow to present his research at another meeting. Any other allowances must be requested in writing to the Program Coordinator and approved by the Program Director 60 days in advance of the event date. Fellows must follow university travel policies. Policy details are outlined online at http://louisville.edu/finance/controller/acctops/travel

**Flights must be booked through a UofL contracted travel agency. Contact the fellowship coordinator for directions on how to setup your travel account. Airfares can be charged directly to the University central billing card using a department speedtype.**

**No late conference registration fees will be paid for by the program. Please contact your fellowship coordinator for all registrations to arrange a time to meet and complete registrations online. The department procard should be used to pay all fellow registrations.**

**Travel Reimbursements:**

When attending a national conference such as ASH or ASCO or presenting at an approved conference you are required to submit documentation as listed below. The program will not refund anything that was not previously approved. Upon return from travel, submit all original receipts, i.e. lodging, rental car, gas, airfare, within **three working days** to the Fellowship Program Coordinator to liquidate your travel claim.

The following are required. Submit all documentation at one time. Incomplete requests will be return to the requester.

1. **Original itemized** receipts (Hotels, registration, parking, taxi, etc)
2. Hotel Itinerary --- must be itemized and show a zero balance with method of payment. All hotels will provide when requested. The EZ-checkouts do not provide the required information.
3. Flight Itinerary which shows dates and times of travel. Per diem for meals is calculated from this.
5. Credit card statements (copies) are required if receipts do not show method of payment and/or last four of card number. It is recommended to black out the first 12 numbers of your credit card number on your statement, (please leave the last four).
6. **Approved** Travel Authorization forms which have been signed by the Program Director and/or Brown Cancer Director/Associate Director of Administration.
7. Travel Reimbursement form has to be submitted to the program coordinator along with the receipts.
8. Personal vehicles should not be used on trips over 200 miles roundtrip. Pre-approval is required. If you chose to drive your personal vehicle versus fly you must provide flight estimates from Egencia with your claim. The University will only reimburse the most cost effective method.
   
   For example. If you drive 300 miles round trip, at .585 cents a mile, your entitlement would be $175.50. If the Expedia.com quote is $50 for a flight then you will be reimbursed the lesser -- $50
9. If your conference was paid by a grant or drug house and you are still filing a claim, documentation of the paid portion must be submitted also.
10. If presenting at a conference, a conference agenda/itinerary must be submitted with your claim. Without proof of presentation then reimbursement will not be approved.

Please always submit your request as soon as possible. Requests must be processed by the University Controller's office within 30 days of travel completion and during the fiscal year travel commenced.

11. Currently the Program will pay for Kentucky Medical License, ASH and ASCO membership, and DEA license renewal during your training. Requests for payment should be sent directly to the Fellowship Coordinator. The fellow should not pay for the above items out of pocket. The coordinator will pay for memberships, DEA, and license renewals with the department procard.

Professional Memberships:
The department will over a membership due for ASH or ASCO. Please provide your invoice to the Program Coordinator for payment. Any membership to a professional society not authorized by the department is the responsibility of the fellow and will not be reimbursed.

BILLING
Fellows should not sign the physician billing sheets as “attending”. This causes problems with billing.

RESEARCH

Overall Goal of Research:
The overall goal is to prepare academically oriented physicians to assume their roles as future leaders in the field of Medical Oncology and Hematology. Fellows should take advantage of the multi-disciplinary research occurring within the James Graham Brown Cancer Center by participating in clinical trials or performing basic research under the supervision of a faculty member.

Fellows are expected to study, plan, design and implement a research or quality improvement project in the field of Medical Oncology and Hematology. The results of the research are expected to be presented at regional and national meeting and submitted for publication in peer reviewed journals.

Core Competencies Obtained Through Research:

- **Patient Care**: Fellows may be involved with research projects that involve translation of basic research findings to human subjects. While patient care is not a part of the research experience, fellows could have contact with the patients with respect to informed consent, patient enrollment, physical examinations, and follow-up.
- **Medical Knowledge**: The fellow would be expected to learn experimental design and data analysis, develop an independent research project with the aid of faculty, and draw appropriate conclusions of data.
- **Professionalism**: Fellows should demonstrate respect for the laboratory animals and ancillary personnel working on the research project. Fellows will uphold research subject confidentiality and an informed consent and have professional interactions with colleagues and coworkers.
- **Interpersonal & Communication Skills**: This is accomplished by face-to-face interaction with the research faculty, human subjects involved in clinical trials as well as research coordinators. The fellows will demonstrate the ability to obtain an informed consent with the subjects detailing the risks and benefits of participating in the research trial. Weekly project reviews with the research faculty of the project are expected. If the faculty does not review the fellow’s work within 6 weeks of submission of the work to the faculty, his/her research mentorship for this project will be withdrawn.
- **Practice Based Learning and Improvement**: Fellows will utilize available resources in the basic research laboratory under the supervision of faculty as well as becoming familiar with research protocol submissions to the Institutional Review Board. Fellows will demonstrate self-motivation to acquire knowledge to further those ends.
- **Systems-Based Practice**: This is accomplished via fellow attendance at research meetings. The fellow will be directly supervised in their research rotation either by clinical or basic research faculty. Fellows will effectively coordinate clinic research protocols with other healthcare professionals and guide human subjects through the complex process of clinical research.
General Timeline:

- At the beginning of the first year of fellowship, fellows should meet with their research faculty mentor to review fellow’s interests and receive guidance regarding research planning. The clinical faculty mentor may recommend a research faculty mentor to collaborate with based on fellow’s interests and goals. The fellow will initiate research study and inquiries the first year of the program. Fellows are normally assigned a total of four months of research time during PGY4. Research months are not consecutive.

- The fellow will continue with the research plan and design during the second year of the fellowship program. (The fellow may begin data collection once the IRB process has been completed.) Fellows are normally assigned a total of three months of research time during PGY5. Research months are not consecutive.

- The fellow will continue the research project into the third year, complete data collection, analyze data and summarize the project. The fellow will professionally disseminate the research result. Fellows are normally assigned a total of seven months of research time during PGY6.

Expected Stages of Research Projects:
Fellows must provide a completed Research Rotation Form to the Program Coordinator prior to their assigned research rotation. The form needs to include the research mentor, topic and stage/milestone of research project (design, implementation, data collection/analysis, presentation/publication). The form needs to be signed by the fellow’s research mentor. The Faculty Mentor will assess the effort, skill and progress of the project in New Innovations using the milestones below:

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<th>Milestone PGY 5/6</th>
<th>Milestone PGY 6</th>
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<td>Research interest defined</td>
<td>Regulatory approval received</td>
<td>Presentation on regional/national level</td>
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<tr>
<td>Topic defined</td>
<td>Implementation</td>
<td>Paper finalized</td>
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<tr>
<td>Mentor identified</td>
<td>Data collection</td>
<td>Submission to publication</td>
</tr>
<tr>
<td>Proposal written</td>
<td>Data analysis</td>
<td>Publication</td>
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<td>Protocol submission</td>
<td>Paper draft</td>
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Participation in research, clinical or basic science is a requirement for completion of training. Each fellow will have 12-18 months to devote to research during their training. Fellows must publish at least two papers in a peer-reviewed journal to graduate from the training program in good standing. (No exceptions)

Department of Medicine Policy on Fellows’ Role in Research Policy Effective 9/13/2011

Department of Medicine Fellows are not allowed to serve at Principal Investigators or Co-Principal Investigators on research projects. Instead, they should be listed as Sub-Investigators or another appropriate role. This applies to both internally- and externally-funded projects. Fellows may serve as PI’s on training and education grants.

ELECTIVE ROTATIONS Policy Effective 12/1/2015

Fellows must complete and submit an Elective Rotation Form in Med Hub System for program director approval at least three (3) months prior to the elective rotation start date. Away rotations at other institutions are permitted but cannot exceed two (2) months during the fellowship training period. Away rotations must also be approved by the GME Office at least 60 days in advance of the rotation start date so please contact the program coordinator for instructions.

List of Preferred Elective Rotations

1. Radiation Oncology
   a. Contact Dr. Anthony Dragun (aedrag01@exchange.louisville.edu)

2. Gynecological Oncology
   a. Contact Dr. Metzinger

3. Surgical Oncology
   a. Contact Dr. Chuck Scoggins
   b. Contact Dr. Jeffrey Bumpous (jmbump01@louisville.edu)

4. Palliative Care (1st year fellows – mandatory)
   a. Contact Dr. Lori Earnshaw (loearn01@louisville.edu)
5. Heme/Pathology
   a. Contact Dr. Samer Alquran
6. Bone Marrow and Transplantation
   a. Contact Dr. William Tse
7. Blood Bank
   a. Contact Dr. Tayyeb Ayyoubi (t0ayyo01@louisville.edu)
8. Private Practice
   A Dr. Khudadad Khan drkdkh@gmail.com
   B Dr. Wangjian Zhong, wangjian.zhong@yahoo.com

Credit for rotations will not be applied if a completed Elective Rotation Form is not submitted in the Med Hub System. Elective Rotations Forms must be submitted for all assigned elective rotations throughout fellowship training in order for the fellow to graduate from the program in good standing.

Electives in inpatient BMT occur in 2 week blocks. At the time of an inpatient BMT elective, fellows are excused from the usual Heme/Onc clinic duty. A fellow can elect up to eight inpatient BMT electives during PGY 5 and PGY 6 training.

ON-CALL SERVICE

The night call shift is between 6:00 p.m. – 6:00 a.m. It is a good practice for the members of the primary teams to keep their pagers on at all times.

The on-call fellow must carry his/her pager at all times during the period of his assignment in order to be reached for information (sign-out) about the patients and any expected complications. The on-call fellow must notify the attending physician on-call of all the admissions immediately and the appropriate primary team of all the off-hours events during the morning of the next working day.

The decision to evaluate the patient at the time of the consult or the next morning (during regular working hours) can be made on a patient-to-patient basis. If the fellow is unsure or uncomfortable with any given situation, he/she should contact the attending physician. The on-call fellow must evaluate all the hematologic and oncologic emergencies immediately and inform the attending physician without delay.

Weekend Coverage – Jewish Hospital/VA Hospital

Since our service no longer has a PGY-1 rotating with us at Jewish Hospital, the attending on service will round one day of the weekend at JH/VA without the fellow on service.

On the day of the weekend, when the fellow on JH service is not rounding with the attending, a new patient will be covered by the on call fellow.

The fellow receiving the new patient needs to inform the attending rounding that weekend about the new patient and needs to inform the fellow on NH/JH service, when he/she returns to the service.

On the day the NH/JH fellow is rounding with the attending the traditional rule applies for the rounding fellow to pick up consults that come in before noon and for the on call fellow to cover consults after 12 pm.

TRANSITIONS OF CARE

Complete lists of patients are handed to the oncoming service and/or to the doctor on call. The fellows on service should assure that the EMR lists of patients is up to date at the time of handover. The clinical necessary information to provide safe and effective care of the patients is personally communicated before the on-call period or the oncoming service take on their duties.

The fellows on service are expected to remain available by pager for urgent clarifications during weekends/afterhours. Fellows come on service the first day of each month, unless the first day falls on a weekend or holiday, for which the fellow on service will stay on. Attendings will come on service the second day of each month. Holidays during the week are covered by the attending/fellow on service.
OUTPATIENT CLINIC

All fellows are assigned to half-day clinics for the duration of their fellowship. To maintain continuity of care, fellows will remain in one ambulatory clinic for 6-12 month periods.

Fellows have to present and discuss all their patients with the attending physician without exception. The attending physician is always the primary physician responsible for the patient. All the notes must be dictated or put in the EMR on the day of the clinic and must include: patient name and spelling, attending name, referring physician name (spelling) and address, date and all the components of a good note as described by the E&M guidelines adopted by the University of Louisville. It is an excellent practice to send a short letter and a copy of the note to all referring physicians. Good documentation is part of the fellowship training and is a must for a successful career.

Fellows can do electives in the following specialized clinics: melanoma (Dr. Miller, Chesney), prostate cancer (Dr. Moffett), lymphoma/leukemia/BMT (Dr. Tse), head and neck cancer (Dr. Redman), hemophilia (Dr. Sharma), gynecology oncology (Dr. Metzinger), Dr. Moffett (Hematology), pediatric oncology (Dr. Cheerva/ Telang), radiation oncology (Dr. Dunlap)and surgery (Dr. Martin/Scoggins). Scheduling these electives is done with the attending physician and must be approved by the fellowship program director.

The fellow assigned to the University Hospital will cover for all the emergencies at the BCC.

Clinic coverage
When a fellow requests vacations or leave of absence, the fellow will need to inform the clinic attending at least 6 weeks in advance. If the clinic attending requires fellows to provide coverage by another fellow, this should be indicated on the vacation request form, which is due at least 6 weeks before the planned leave of absence. If fellows are not able to arrange for coverage, the “super fellow” on service will cover the clinic.

Super Fellow Service
The super fellow service will provide back up for clinics and inpatient service. PY5s will have one month and PY6s will have three months of super fellow service. The super fellow months do not have to be consecutive. If the census on the in-service team is over 20 active patients, the super fellow is available during weekdays to help in patient management. Clinics requiring coverage will be covered by the super fellow unless the super fellow is covering the inpatient service. The super fellow will also be responsible for at least one monthly grand round. The super fellow would also serve as a back-up to cover clinics for fellows on leave.

The super fellow will continue to attend his/her usual 3-4 half day clinics per week. Super fellows who have write-ups or ongoing research are encouraged to pursue this during their super fellow month, if they are not needed for back up coverage in clinic or service.
DICTATED NOTES AND DICTAPHONES

Fellows will be issued a Dictaphone at the start of the fellowship program and will be required to return the Dictaphone to the fellowship coordinator at completion of the program. Should a fellow lose or break the Dictaphone, one replacement will be ordered for the fellow by the program. If a fellow needs a second replacement, the fellow will be required to pay for the replacement using personal funds.

Fellows are required to dictate all outpatient notes. In order to be able to search our database of patients for future clinical research or other reasons, we need to standardize all notes. We must follow these guidelines:

Start your dictations with the following paragraph:
“My attending, Dr. _____, has seen and examined the patient with me and agrees with the plan. This is Dr. _________ (your last and first name, SPELL IT). Dictating a clinic note for a patient named ________ (Last and First name of patient, SPELL IT). Date of Birth ________. Medical Record #________. Date of clinic visit is ________at the BCC.”

1. Reason for the visit
2. Summary of the history: from the date of the diagnosis and must include all therapies received by the patient (surgery, radiotherapy and chemotherapy) including dates and outcomes (i.e.: PR, CR, SD, PD), until the previous visit.
3. Subjective (may include the review of systems). Cannot say “review of systems negative”, need to specify each symptoms (pertinent positives and negatives).
4. Objective
5. Assessment. Do not repeat the history. Must include:
   a. Diagnosis, stage, performance status, cycle and day of current chemotherapy and the clinical protocol that the patient is enrolled. Example: "NSCLC, adenocarcinoma, Stage IIIa (T3, N1, M0), PS ECOG 0, Carbo/Taxol C3 D1 under protocol HSC 578-03".
   b. Other diagnosis.
   c. Please include “Chemotherapy induced anemia”, when appropriate, so your patients can get the epo covered.
6. Discussion. Here is where you can explain your discussion with the patients and families, prognosis, survival, options, etc. You may omit this part if not needed.
8. Referring physician’s name (spelling) and address

INPATIENT (PRIMARY ONCOLOGY) SERVICE

Medical oncology admits patients to our primary service in many situations including, but not restricted to, chemotherapy and immunotherapy administration, transfusion of blood products, pain control, hospice care and complication of chemotherapy. After regular hours and on weekends, some of our patients may be admitted to the medicine service. As a If transfer to our service is requested by the medicine service, and the patient’s primary problem is related to the malignancy or the patient’s outpatient physician is a hematologist or medical oncologist, we will accept the transfer. Admission Policy ( can be overruled by attending’s discretion:

Hematology/Oncology Admission policy at University Hospital

Hem/Onc Admission:

- Brown Cancer Center (BCC) patients currently under care of hematology/oncology attendings (not rad onc, gyn onc, ENT, surg onc, BMT,
etc) currently undergoing or having undergone cytotoxic therapy (not
hormone ablation) within past 6 months
-BCC patients with a benign hematology diagnosis (ie. sickle cell disease,
thrombotic thrombocytopenic purpura, etc) scheduled to receive an
inpatient therapeutic procedure (ie. PRBC exchange, plasmapharesis)
pre-arranged in BCC clinic
-BCC patients with a benign hematology diagnosis (ie. thrombotic
thrombocytopenic purpura, etc) currently actively treated for their
diagnosis not in remission (ie. steroids, rituximab, cyclophosphamide; not
hydroxyurea in sickle cell disease).

Non Hem/Onc Admission:
-MICU level patients should be admitted to MICU service. Transfer to
inpatient hem/onc service should occur once patient is stable (no longer
requiring MICU level care) and when fellow is in-house (06:00 AM through
06:00 PM weekdays, 06:00 AM through 12:00 noon weekends) so that patient
can be formally evaluated.
-BCC patients who are being admitted for an emergent diagnosis and
established inpatient service is standard of care (ie. NSTEMI/STEMI/new
heart failure-cardiology, CVA-stroke, acute/emergent surgical dx-surgical
services).
-patients with a benign hematology diagnosis such as sickle cell disease,
ITP, TTP, etc. who presents through the ER not receiving active treatment
for their disease
-patients with solid organ cancers that have not been evaluated at BCC
clinic by hem/onc attending
-patients with malignant hematological diagnosis that have not been evaluated
at BCC by hem/onc attending

Hem/Onc fellow:
-hem/onc fellow on inpatient service or on-call will admit patients from
06:00 AM through 06:00 PM on weekdays and 06:00 AM through 12:00 noon on
weekends. Patients not physically present at University Hospital after
06:00 PM on weekdays and 12:00 noon on weekends will be admitted by
internal medicine. It is inappropriate to tell patients specific times to
arrive to avoid having to do the admission.
-admissions from 06:00 PM though 06:00 AM on weekdays and 12:00 noon
through 06:00 AM on weekends will be admitted by internal medicine to the
inpatient hem/onc service.
-patients not evaluated in clinic or infusion center, need to go through
the ER for formal evaluation of admission.
-direct admission (ie. from home) is appropriate as long as hem/onc staff
attending accepting the admission has determined the level of bed/care and
conveyed to the inpatient medical staff (ie. fellow, nurse) initial
work-up and management orders.
CONSULTATIONS

Requests for consultation should be answered within 24 hours and at least a brief note entered in the chart to indicate that the patient has been seen (Obviously in emergency situations immediate evaluation, presentation to staff, and writing of a note may be necessary). It is important to communicate directly with the house officer or attending responsible for the patient as well. After the patient has been presented to and discussed with the attending, the diagnostic and therapeutic recommendations arrived at should be recorded in the chart. A student note should never be the only consultation note on the chart, even temporarily. The attending should see every patient and add a note. Once we have seen a patient in consultation, we shall usually plan to follow him at appropriate intervals for the rest of his hospitalization. The resident or fellow following the patient should visit him regularly and keep track of his progress. Follow-up notes are appropriate in many cases, but no arbitrary frequency of notes is required.

No consultative opinion should be offered without seeing the patient. "Curbstone" or phone consultations, which may be presented to you, are hazardous. Do not make judgments about a specific patient you have not seen (general discussions about hem/onc subjects are fine!). Occasionally a resident will ask, "Do we need a consultation?" If the question is asked, the answer is generally "yes". Sometimes the consultative question is not the right one, and you will discover what is needed when you see the patient and chart. AIDS patients often present these kinds of questions. We occasionally do "marrow only" consults on AIDS patients (see below), but the ward team may ask only for a marrow for culture or "R/O lymphoma" (which, of course, is not a proper reason for a marrow), not appreciating other important hematological questions. At least take a look at the chart and lab data to be sure a "marrow only" is appropriate.

If limited to the same database, most competent physicians will reach similar conclusions. Therefore, the hem/onc consultant offers a real service by scrupulously challenging the accuracy and completeness of the database as recorded in the chart or presented by the referring physicians. While the history, physical examination, and review of other data by the hem/onc consultant should be complete, the consultation note need not reiterate all the history, physical findings, and lab work but rather should summarize and synthesize the data pertinent to the hem/onc problem, point out any new findings or findings different from other observers, and make clear recommendations. A description of the patient's blood smear is usually necessary.

The consultation should serve a useful teaching function for house staff and students, and the consultant should consider this a prime part of his function, both through his notes in the chart and by personal contact. Pertinent literature references are useful in this regard. Since we often follow patients seen in consultation, please make a Xerox copy of your note (and the attending's if possible) to place in our office chart or ask the dictation service to mail a copy of the full consultation note to the Brown Cancer Center to the attention of the specific attending.

Since the hem/onc service follows many patients closely over long periods of time and frequently makes the major therapeutic decisions, it is sometimes a temptation to assume a dictatorial role in management. It is important to maintain a tactful interaction with the ward team and include them in our thinking and plans. The fellow may lose a little efficiency thereby, but education is improved and, in the end, the patient receives better care.

Continuity of care is a highly desirable goal. Thus, if any patient, who has been followed previously by hem/onc in the hospital or clinic, is readmitted, he should be seen by our service, and a note should be written. The ward team will frequently be greatly aided by our prior knowledge of the patient, and this information needs to get to them promptly. When we admit a patient, e.g. from clinic, there should be a hem/onc note on the chart on the day of admission. This should summarize the course of the patient's illness and treatment and transmit important information from our clinic record.

Occasionally you may be asked simply to perform a bone marrow aspiration on a patient. Bone marrows are done as part of a hematological consultation and are not a separately available "laboratory test". Evaluate the patient and do the marrow if it is indicated. In two categories of patients a "marrow only" consultation may be appropriate: (1) if another oncologist needs a staging marrow, we will do it without full consultation. The only notes necessary are the procedure note and a later description of the findings. (2) Some AIDS patients need a marrow primarily for culture. We perform and read such marrows. In these patients it is important to review the chart briefly to be sure there are not other hematological issues which require a full consultation. If there are not, then only a procedure note and a later description of the marrow findings are necessary. "Marrow only" patients are sometimes not adequately prepared for the procedure by the referring physician. Thus a pre-marrow visit to explain the test is appropriate. In the outpatient setting, we have found it preferable to see the patient for a brief clinic visit prior to scheduling the marrow.
ATTENDING ROUNDS

Rounds with the attending will be held at specified times. New consultations will be seen and current patients revisited. Except in emergency situations, the fellow or resident should have fully evaluated the patient before presenting him or her on rounds and should have pertinent materials, particularly the blood smear, available for review (see below). If acutely ill patients need to be seen before regular rounds, this should be arranged with the attending. The attending should be kept up to date on all patients being followed. Do not hesitate to call the attending at any time to discuss problems or just to keep him advised. Dr. Kloecker may be contacted at any time whether or not he is on service.

EDUCATIONAL GOALS AND OBJECTIVES

1. Patient Care

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

   a. Develop procedural and decisional skills to care for hematological and oncological patients
   b. Communicate effectively and demonstrate caring and respectful behavior when interacting with patients and their families.
   c. Gather essential and accurate information about their patients
   d. Make informed decisions about diagnostic and therapeutic interventions according to patient information and preferences, up-to-date scientific evidence, and clinical judgment.
   e. Develop and carry out patient treatment plans
   f. Counsel and educate patients and their families
   g. Use information technology to support patient care decisions and patient education
   h. Perform competently all medical and invasive procedures considered essential for a practitioner of hematology and oncology
   i. Provide health care services aimed at preventing health problems or maintaining health
   j. Work with health care professionals, including those from other disciplines, to provide patient-focused care

2. Medical Knowledge

Fellows must demonstrate a comprehensive knowledge of hematology and medical oncology and apply this knowledge to patient care. Fellows are expected to:

   a. Demonstrate an investigatory and analytic thinking approach to clinical situations
   b. Know and apply the basic and clinically supportive sciences that are appropriate to their discipline
   c. Utilize tools to maintain current knowledge in the standard of care of hematology and medical oncology
   d. Strive for academic achievement

3. Practice-Based Learning and Improvement

Fellows must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices. Fellows are expected to:

   a. Analyze practice experience and perform practice based improvement activities using a systematic methodology
   b. Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems
   c. Obtain and use information about their own population of patients and the larger population from which the patients are drawn
   d. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness
   e. Use information technology to manage information access online medical information, and support their own education
   f. Facilitate the learning of students and other health care professionals

4. Interpersonal and Communication Skills
Fellows 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. Fellows are expected to:

a. Create and sustain a therapeutic and ethically sound relationship with patients
b. Use effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills
c. Work effectively with others as a member or leader of a health care team or other professional group

5. Professionalism

Fellows must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. Fellows are expected to:

a. 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 ongoing professional development
b. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices
c. Demonstrate sensitivity and responsiveness to patients’ culture, age, sex, and disabilities

6. Systems-Based Practice

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

a. Understand how their patient care and other professional practices affect other health care professions, the health care organization, and the larger society and how these elements of the system affect their own practice
b. Know how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources
c. Practice cost-effective health care and resource allocation that does not compromise quality of care
d. Advocate for quality patient care and assist patients in dealing with system complexities
e. Know how to work with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance

CURRICULUM

University of Louisville
Medical Oncology and Hematology Fellowship Curriculum
HEMATOPOIETIC STEM-CELL TRANSPLANTATION (BMT) SERVICE
PGY 4: Inpatient Service – University of Louisville Hospital, Hematopoietic Stem-Cell Transplantation (also known as Bone Marrow Transplantation (BMT))

Goal of rotation:
1. Diagnose, work-up and treat malignant hematological disorders in the BMT unit
2. Learn supportive care measures for malignant hematological disorders

Learning Objectives for Inpatient Rotation for PGY 4

- **Patient Care**: PGY 4 residents (fellows) will demonstrate:
  - Competence in HSCT history and exam.
  - Ability to begin initial workup and staging of patients undergoing or planned to undergo HSCT, and management of the complications of therapy.
- **Medical Knowledge**: PGY 4 residents (fellows) will acquire knowledge of HSCT:
o Types of HSCT: Until recently, the 2 major types of HSCT have been autologous and allogeneic transplantations. A third type now being used with increasing frequency is umbilical-cord blood transplantation (CBT).

o The source of hematopoietic stem cells for use in autologous and allogeneic transplantations: bone marrow, peripheral blood and umbilical-cord blood.

o Cellular characteristics of various sources of stem-cells.

o Clinical characteristics with various sources of stem-cells.

o Issues in the collection of stem-cells.

o Common Indications for HSCT. More than 30,000 autologous and 15,000 allogeneic transplantation procedures are performed every year worldwide. The list of diseases for which HSCT is being used is rapidly increasing. More than half of the autologous transplantations are performed for multiple myeloma and non-Hodgkin lymphoma, and a vast majority of allogeneic transplants are performed for hematologic and lymphoid cancers.

o Conditioning regimens including myeloablative, nonmyeloablative, and reduced intensity.

o Outcomes including transplantation-related mortality and morbidity rates, and survival by disease.

o Early HSCT related complications including mucositis, graft versus host disease, veno-occlusive disease, transplantation-related lung injury, and transplantation-related infections.

o Late HSCT related complications including chronic graft versus host disease, ocular effects, endocrine effects, pulmonary effects, musculoskeletal effects, neurocognitive and neuropsychological effects, and immune effects.

o PGY-4-6 residents (fellows) will:
  ▪ Formulate a prioritized differential diagnosis.
  ▪ Formulate an appropriate initial diagnostic and therapeutic plan.
  ▪ Read about each patient encounter in general HSCT, hematology and medical oncology texts.
  ▪ Demonstrate a progression in knowledge and analytical thinking.
  ▪ Formulate a plan based on current scientific evidence.
  ▪ Anticipate and minimize adverse consequences of therapy.

• Practice Based Learning and Improvement: PGY-4 residents (fellows) should:
  o Utilize available resources to make timely and appropriate diagnostic and management decisions.
  o Emphasize the use of evidence-based medicine.
  o Seek formative feedback, and use it to improve performance.
  o Demonstrate self-motivation to acquire knowledge.
  o Demonstrate knowledge of impact of study design on validity or applicability to individual patient situations.
  o Model independent learning.
  o Identify knowledge deficits and work to remedy them.

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

• Professionalism: PGY-4 residents (fellows) will:
  o 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.
  o Uphold patient confidentiality and informed consent.
  o Recognize and admit mistakes and notify the attending, and (when appropriate, with guidance from the attending) the patient when mistakes are found.

• Systems Based Practice: PGY-4 residents (fellows) will:
  o Become familiar with the practice of HSCT for inpatients at a hospital and cancer center.
  o Access and utilize necessary resources within these systems to provide optimal patient care, including EBM and cost conscious strategies.
  o Effectively coordinate care with other health care professionals
  o Guide patients through the complex health care system, if needed.
  o Demonstrate knowledge of methods to control health care costs while preserving high quality care.
PGY 5-6: Outpatient Service – University of Louisville Hospital, Hematopoietic Stem-Cell Transplantation (also known as Bone Marrow Transplantation [BMT])

**Goal of rotation:**
1. Diagnose, work-up and treat malignant hematological disorders in the outpatient setting
2. Learn supportive care measures for malignant hematological disorders

**Learning Objectives for Outpatient Rotation for PGY 5-6**

- **Patient Care**: PGY 5-6 residents (fellows) will demonstrate:
  - Competence in HSCT history and exam.
  - Ability to begin initial workup and staging of patients undergoing or planned to undergo HSCT, and management of the complications of therapy.
  - Understanding of:
    - Indications for HSCT
    - 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
    - Understand the sensitivity and specificity of specific physical exam maneuvers

- **Medical Knowledge**: PGY 5-6 residents (fellows) will acquire knowledge of HSCT:
  - Types of HSCT: Until recently, the 2 major types of HSCT have been autologous and allogeneic transplantations. A third type now being used with increasing frequency is umbilical-cord blood transplantation (CBT).
  - The source of hematopoietic stem cells for use in autologous and allogeneic transplantations: bone marrow, peripheral blood and umbilical-cord blood.
  - Cellular characteristics of various sources of stem-cells.
  - Clinical characteristics with various sources of stem-cells.
  - Issues in the collection of stem-cells.
  - Outpatient and preparation of patients for HSCT
  - Common Indications for HSCT. More than 30,000 autologous and 15,000 allogeneic transplantation procedures are performed every year worldwide. The list of diseases for which HSCT is being used is rapidly increasing. More than half of the autologous transplantations are performed for multiple myeloma and non-Hodgkin lymphoma, and a vast majority of allogeneic transplants are performed for hematologic and lymphoid cancers.
  - Late HSCT related complications including chronic graft versus host disease, ocular effects, endocrine effects, pulmonary effects, musculoskeletal effects, neurocognitive and neuropsychological effects, and immune effects.
  - PGY-5-6 residents (fellows) will:
    - Formulate a prioritized differential diagnosis.
    - Formulate an appropriate initial diagnostic and therapeutic plan.
    - Read about each patient encounter in general HSCT, hematology and medical oncology texts.
    - Demonstrate a progression in knowledge and analytical thinking.
    - Formulate a plan based on current scientific evidence.
    - Anticipate and minimize adverse consequences of therapy.

- **Practice Based Learning and Improvement**: PGY-5-6 residents (fellows) should:
  - Utilize available resources to make timely and appropriate diagnostic and management decisions.
  - Emphasize the use of evidence-based medicine.
  - 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.
  - Model independent learning.
  - Identify knowledge deficits and work to remedy them.

- **Interpersonal and Communication Skills**: PGY-5-6 residents (fellows) will:
  - 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.
Facilitate education of other health care professionals.

Demonstrate the ability to communicate bad news in a caring and appropriate manner.

**Professionalism:** PGY-5-6 residents (fellows) will:
- 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.

**Systems Based Practice:** PGY-5-6 residents (fellows) will:
- Become familiar with the practice of HSCT in the outpatient setting at a hospital and cancer center.
- Access and utilize necessary resources within these systems to provide optimal patient care, including EBM and cost conscious strategies.
- Effectively coordinate care with other health care professionals
- Guide patients through the complex health care system, if needed.
- Demonstrate knowledge of methods to control health care costs while preserving high quality care

**How Learning Objectives Are Met:**
- Direct patient care with close interaction and supervision by a hematology and medical oncology attending/faculty, to include work and bedside rounds on the inpatient service.
- Through critical use of the available evidence based guidelines.
- Teaching conferences (detailed in the Fellowship Handbook)

**Required Reading and Resources:**
- HSCT textbooks: Thomas’ Hematopoietic Cell Transplantation (3rd edition, 2009) by Karl G. Blume (Editor), Stephen J. Forman (Editor), Frederick R. Appelbaum (Editor); Clinical Bone Marrow and Blood Stem Cell Transplantation by Kerry Atkinson (Editor), Richard Champlin (Editor), Jerome Ritz (Editor), Willem E. Fibbe (Editor), Per Ljungman (Editor), Malcom K. Brenner (Editor).
- Oncology textbooks: Cancer: Cancer Medicine 7 (Cancer Medicine (Holland)) by Donald W. Kufe (2006), Principles and Practice of Oncology by Vincent T DeVita, Samuel Hellman, and Steven A Rosenberg (9th edition 2011)
- Literature searches done to optimize patient care and supplement knowledge. Suggested journals: Journal of Clinical Oncology, Blood, Annals of Internal Medicine, and New England Journal of Medicine
- PDQ (Physician Data Query) is NCI’s comprehensive cancer database available at http://www.cancer.gov/cancertopics/pdq. It contains peer-reviewed summaries on cancer treatment, screening, prevention, genetics, and supportive care, and complementary and alternative medicine; a registry of more than 4,000 open and 15,000 closed cancer clinical trials from around the world; and directories of physicians, professionals who provide genetics services, and organizations that provide cancer care.
- American Society of Clinical Oncology continuing medical education products and other resources on professional development and training programs available at www.asco.org. Click on Education & Training.
- American Society of Hematology Education & Career Resources, available at www.hematology.org. Click on education and careers, then on either training, teaching cases or images.

**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 ASAP to arrange any necessary coverage, including continuity clinic, as well as the attending/faculty.
- Completion of the above learning objectives.
Evaluation:

- Residents, fellows, and attending/faculty will evaluate each other by using the New Innovations evaluation form. Supervising attending is expected to meeting mid-month with rotating residents to discuss their performance to date and give useful suggestions for improvement (i.e. formative feedback).
- Evaluations by staff and patients
- Log all procedures in the New Innovations Procedure Logger.

Contact: Fellowship Coordinator at (502) 852-4121

Updated: June 16, 2016

University of Louisville
Medical Oncology and Hematology Fellowship Curriculum
OUTPATIENT CLINICS

PGY 4: Outpatient Clinics – James Graham Brown Cancer Center and Robley Rex Veterans Affairs Medical Center

Goal of rotation:

1. Diagnose, work-up and treat hematological and oncological disorders
2. Learn supportive care and cancer surveillance

Learning Objectives for Rotation

- **Patient Care:** PGY 4s will demonstrate:
  - Competence in hematology/oncology-targeted history and exam.
  - Ability to begin initial workup and staging of hematology and oncology problems, and management of the complications of therapy.
  - Understanding of:
    - Indications for hematology/oncology 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
    - Understand the sensitivity and specificity of specific physical exam maneuvers
    - Complete at least 10 bone marrow biopsies/aspirations, accredited by an attending

- **Medical Knowledge:** PGY 4 residents (fellows) will acquire knowledge of the epidemiology, etiology, pathophysiology, risk factor, clinical manifestations, exam and diagnostic evaluation findings, and appropriate ambulatory and inpatient management of:
  - Mass suspicious for cancer
  - Anemia
  - Thrombocytopenia
  - Leucopenia
  - Disorders of hemostasis
  - Myeloproliferative disorders (acute and chronic leukemias, lymphomas, paraproteinemias, etc)
  - Oncologic emergencies including spinal cord compression, neutropenic fever, tumor lysis syndrome, hypercalcemia
  - Understand relation between cancer staging and treatment options, and combined contributions of medical, radiation, and surgical oncology in cancer therapy.
  - Acquire knowledge of basic principles of cancer chemotherapy, including hormonal and biologic therapies, and common side effects.
Recognize the distinction between treatment plans for cure, for prolongation of life, and for palliation of active symptoms
Understand the principles of pain management, including the use of opioid analgesics and adjunctive medications
Understand basic principles of terminal patient care, specifically inpatient and home hospice programs
Understand proper communication of poor prognosis
Understand long-term complications of cancer and its therapy, including the common side effects of chemotherapy agents.

PGY 4 residents (fellows) will:
- Formulate a prioritized differential diagnosis
- Formulate and appropriate initial diagnostic and therapeutic plan
- Read about each patient encounter in general hematology and medical oncology texts
- Demonstrate a progression in knowledge and analytical thinking.
- Formulate a plan based on current scientific evidence.
- Anticipate and minimize adverse consequences of therapy.

Practice Based Learning and Improvement: PGY 4 residents (fellows) should:
- Utilize available resources to make timely and appropriate diagnostic and management decisions.
- Emphasize the use of evidence-based medicine.
- Seek formative feedback, and use it to improve performance.
- Demonstrate self-motivation to acquire knowledge.
- Model independent learning.
- Identify knowledge deficits and work to remedy them.

Interpersonal and Communication Skills: PGY 4 residents (fellows) should:
- Demonstrate availability 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.
- Demonstrate the ability to communicate bad news in a caring and appropriate manner.

Professionalism: PGY 4 residents (fellows):
- 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.

Systems Based Practice: PGY 4 residents (fellows) will:
- Become familiar with the practice of outpatient hematology/ oncology.
- Access and utilize necessary resources within these systems to provide optimal patient care, including EBM and costs conscious strategies.
- Effectively coordinate care with other health care professionals.

How Learning Objectives are Met:
- Direct patient care with close interaction and supervision by a hematology and medical oncology attending/faculty, to include work and bedside evaluation on patients coming to the clinic.
- Integrate evaluations by patients and staff
- Through critical use of the available evidence based guidelines.

Required Reading and Resources:
- Hematology textbooks:
  - Hematology: Basic Principles and Practice by Ronald Hoffman, Edward Benz, Sanford Shattil, and Bruce Furie (2009)
Oncology Textbooks:
- *Principles and Practice of Oncology* by Vincent T. DeVita, Samuel Hellman, and Steven A. Rosenberg (2011)


PDQ (Physician Data Query) is NCI’s comprehensive cancer database available at [http://www.cancer.gov/cancertopics/pdq/cancerdatabase](http://www.cancer.gov/cancertopics/pdq/cancerdatabase). This database contains peer-reviewed summaries on cancer treatment, screening, prevention, genetics, and supportive care, and complementary and alternative medicine; a registry of more than 8,000 open and 19,000 closed cancer clinical trials from around the world; and directories of physicians, professionals who provide genetics services, and organizations that provide cancer care.

American Society of Clinical Oncology continuing medical education products and other resources on professional development and training programs available at [www.asco.org](http://www.asco.org). Click on *Education & Training.*


**Expectations:**
- Punctual attendance for all patient care activities, lectures, and regularly scheduled conferences. If a personal or family emergency occurs that requires absence or tardiness, call ASAP to arrange any necessary coverage, including continuity clinic, as well as the attending/faculty.
- Completion of the above learning objectives

**Evaluation:**
- Residents, fellows, and attending/faculty will evaluate each other by using the MedHub evaluation form.
- Supervising attending is expected to meeting mid-month with rotating residents to discuss their performance to date and give useful suggestions for improvement (i.e. formative feedback).
- Integrate feedback by patients and staff
- Log all procedures in the MedHub Procedure Logger.

Updated: November 5, 2017

**PGY 5-6: Outpatient Clinics – James Graham Brown Cancer Center and Robley Rex Veterans Affairs Medical Center**

**Goal of rotation:**
1. Diagnose, work-up and treat hematological and oncological disorders
2. Learn supportive care and cancer surveillance

**Learning Objectives for Rotation**
- **Patient Care:** PGY 5-6 residents (fellows) will demonstrate:
  - Competence in hematology/oncology-targeted history and exam.
  - Ability to begin initial workup and staging of hematology and oncology problems, and management of the complications of therapy.
  - Understanding of:
    - Indications for hematology/oncology 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
- Understand the sensitivity and specificity of specific physical exam maneuvers

Medical Knowledge: PGY 5-6 residents (fellows) will acquire knowledge of the epidemiology, etiology, pathophysiology, risk factor, clinical manifestations, exam and diagnostic evaluation findings, and appropriate ambulatory and inpatient management of:
- Mass suspicious for cancer
- Anemia
- Thrombocytopenia
- Leucopenia
- Disorders of hemostasis
- Myeloproliferative disorders (acute and chronic leukemias, lymphomas, paraproteinemias, etc)
- Oncologic emergencies including spinal cord compression, neutropenic fever, tumor lysis syndrome, hypercalcemia
- Understand relation between cancer staging and treatment options, and combined contributions of medical, radiation, and surgical oncology in cancer therapy.
- Acquire knowledge of specific principles of cancer chemotherapy, including hormonal and biologic therapies, and common side effects.
  - Specifically:
    - Recognize and treat anthracycline extravasation
    - Recognize the pharmacogenetic factors on chemotoxicity
    - Understand the adverse effects of chemotherapy, toxicity of chemotherapeutic agents, cardiac toxicity of chemotherapy, and contraindications to chemotherapy
    - Understand appropriate chemotherapy dosing
    - Understand drug interactions with chemotherapeutic and chemotherapy agents
    - Understand the pharmacology of Irinotecan
    - Recognize complications of pharmacotherapies used in end of life care
    - Understand appropriate treatment with fluoropyrimidine
    - Understand treatment of patients with compromised renal function
    - Recognize Gilberts syndrome
    - Recognize common adverse effects of antiemetic drugs
    - Recognize neutropenic sepsis
    - Recognize adverse effects of bevacizumab in elderly patients
- Recognize the distinction between treatment plans for cure, for prolongation of life, and for palliation of active symptoms
- Understand the principles of pain management, including the use of opioid analgesics and adjunctive medications
- Understand the principles of terminal patient care, specifically inpatient and home hospice programs
  - Specifically:
    - Recognize when to initiate hospice care in elderly patients
    - Understand the appropriate use of cannbioids as appetite stimulants
    - Understand proper communication of poor prognosis
- Understand long-term complications of cancer and its therapy, including the common side effects of chemotherapy agents.
- PGY 5-6 residents (fellows) will:
  - Formulate a prioritized differential diagnosis
  - Formulate and appropriate initial diagnostic and therapeutic plan
  - Read about each patient encounter in general hematology and medical oncology texts
  - Demonstrate a progression in knowledge and analytical thinking.
• Formulate a plan based on current scientific evidence.
  • Anticipate and minimize adverse consequences of therapy.

• **Practice Based Learning and Improvement:** PGY 5-6 resident (fellows) should:
  - Utilize available resources to make timely and appropriate diagnostic and management decisions.
  - Emphasize the use of evidence-based medicine.
    - Understand the appropriate interpretation of clinical trial results
    - Understand appropriate basic statistical measures
    - Recognize appropriate clinical trial eligibility
    - Understand intention to treat analysis
  - 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.
  - Model independent learning.
  - Identify knowledge deficits and work to remedy them.
  - Participate in QOPI

• **Interpersonal and Communication Skills:** PGY 5-6 residents (fellows) should:
  - Demonstrate availability 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.
  - Demonstrate the ability to communicate bad news in a caring and appropriate manner.

• **Professionalism:** PGY 5-6 residents (fellows):
  - 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.

• **Systems Based Practice:** PGY 5-6 residents (fellows) will:
  - Become familiar with the practice of outpatient hematology/oncology.
  - Access and utilize necessary resources within these systems to provide optimal patient care, including EBM and costs conscious strategies.
  - Effectively coordinate care with other health care professionals.
  - Guide patients through the complex health care system, if needed.
  - Demonstrate knowledge of methods to control health care costs while preserving high quality care.

**How Learning Objectives are Met:**
- Direct patient care with close interaction and supervision by a hematology and medical oncology attending/faculty, to include work and bedside evaluation on patients coming to the clinic.
- Integrate evaluations by patients and staff
- Through critical use of the available evidence based guidelines.
- Teaching conferences

**Required Reading and Resources:**
- Hematology textbooks:
  - Hematology: Basic Principles and Practice by Ronald Hoffman, Edward Benz, Sanford Shattil, and Bruce Furie (2009)
- Oncology Textbooks:
  - *Principles and Practice of Oncology* by Vincent T. DeVita, Samuel Hellman, and Steven A. Rosenberg (2011)
- PDQ (Physician Data Query) is NCI’s comprehensive cancer database available at [http://www.cancer.gov/cancertopics/pdq/cancertopics](http://www.cancer.gov/cancertopics/pdq/cancertopics). This database contains peer-reviewed summaries on cancer treatment, screening, prevention, genetics, and supportive care, and complementary and alternative medicine; a registry of more than 8,000 open and 19,000 closed cancer clinical trials from around the world; and directories of physicians, professionals who provide genetics services, and organizations that provide cancer care.
- American Society of Clinical Oncology continuing medical education products and other resources on professional development and training programs available at [www.asco.org](http://www.asco.org). Click on *Education & Training*.

**Expectations:**

- Punctual attendance for all patient care activities, lectures, and regularly scheduled conferences. If a personal or family emergency occurs that requires absence or tardiness, call ASAP to arrange any necessary coverage, including continuity clinic, as well as the attending/faculty.
- Completion of the above learning objectives

**Evaluation:**

- Residents, fellows, and attending/faculty will evaluate each other by using the New Innovations evaluation form. Supervising attending is expected to meeting mid month with rotating residents to discuss their performance to date and give useful suggestions for improvement (i.e. formative feedback).
- Integrate evaluations by patients and staff
- Log all procedures in the New Innovations Procedure Logger.

**Contact:** Fellowship Coordinator at (502) 852-4121

Updated: June 29 2017

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**University of Louisville**

**Medical Oncology and Hematology Fellowship Curriculum**

**INPATIENT ROTATIONS/SERVICES**

**PGY 4: Inpatient Service – University of Louisville Hospital, Jewish Hospital, and Robley Rex Veterans Affairs Medical Center**

**Goals of rotation:**
1. Diagnose, work-up and treat common oncologic and hematologic disorders in the inpatient setting
2. Collaborate effectively with teams of professional health care providers

**Learning Objectives for Rotation**

**Patient Care:** PGY 4 residents (fellows) will demonstrate:
- Competence in hematology/oncology-targeted history and exam.
- Ability to begin initial workup and staging of hematology and oncology problems, and management of the complications of therapy.
- Understanding of:
  - Indications for hematology/oncology 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
- Sensitivity and specificity of specific physical exam maneuvers
- Patient cultural and moral differences when planning therapy

- **Medical Knowledge:** PGY 4 residents (fellows) will acquire knowledge of the epidemiology, etiology, pathophysiology, risk factor, clinical manifestations, exam and diagnostic evaluation findings, and appropriate ambulatory and inpatient management of:
  - Mass suspicious for cancer
  - Anemia
  - Thrombocytopenia
  - Leucopenia
  - Disorders of hemostasis
  - Myeloproliferative disorders (acute and chronic leukemias, lymphomas, paraproteinemias, etc)
  - Oncologic emergencies including spinal cord compression, neutropenic fever, tumor lysis syndrome, hypercalcemia
  - Understand relation between cancer staging and treatment options, and combined contributions of medical, radiation, and surgical oncology in cancer therapy.
  - Acquire knowledge of basic principles of cancer chemotherapy, including hormonal and biologic therapies, and common side effects.
  - Recognize the distinction between treatment plans for cure, for prolongation of life, and for palliation of active symptoms
  - Understand the principles of pain management, including the use of opioid analgesics and adjunctive medications
  - Understand the principles of terminal patient care, specifically inpatient and home hospice programs
    - Specifically:
      - Recognize when to initiate hospice care in elderly patients
      - Understand the appropriate use of cannabioids as appetite stimulants
      - Understand proper communication of poor prognosis
  - Understand long-term complications of cancer and its therapy, including the common side effects of chemotherapy agents.
  - PGY 4 residents (fellows) will:
    - Formulate a prioritized differential diagnosis
    - Formulate and appropriate initial diagnostic and therapeutic plan
    - Read about each patient encounter in general hematology and medical oncology texts
    - Demonstrate a progression in knowledge and analytical thinking.
    - Formulate a plan based on current scientific evidence.
    - Anticipate and minimize adverse consequences of therapy.

- **Practice Based Learning and Improvement:** PGY 4 resident (fellows) should:
  - Utilize available resources to make timely and appropriate diagnostic and management decisions.
  - Emphasize the use of evidence-based medicine.
    - Understand the appropriate interpretation of clinical trial results
    - Understand appropriate basic statistical measures
    - Recognize appropriate clinical trial eligibility
    - Understand intention to treat analysis
  - 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.
  - Model independent learning.
  - Identify knowledge deficits and work to remedy them.
• **Interpersonal and Communication Skills**: PGY 4 residents (fellows) should:
  o Demonstrate availability to interact with other physicians, nursing, and clinic staff, the patients and their families in a professional, respectful and effective manner.
  o Keep legible, complete and timely medical records and dictations.
  o Identify the questions and wishes of the consulting physician.
  o Demonstrate competence in oral presentation.
  o Demonstrate the ability to communicate bad news in a caring and appropriate manner.

• **Professionalism**: PGY 4 residents (fellows):
  o 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.
  o Uphold patient confidentiality and informed consent.
  o Recognize and admit mistakes and notify the attending, and (when appropriate, with guidance from the attending) the patient when mistakes are found.

• **Systems Based Practice**: PGY 4 residents (fellows) will:
  o Become familiar with the practice of inpatient hematology/ oncology at a hospital.
  o Access and utilize necessary resources within these systems to provide optimal patient care, including EBM and costs conscious strategies.
  o Effectively coordinate care with other health care professionals.
  o Guide patients through the complex health care system, if needed.
  o Effectively use EMR’s

**How Learning Objectives are Met:**
- Direct patient care with close interaction and supervision by a hematology and medical oncology attending/faculty, to include work and bedside rounds on the inpatient service.
- Integrate evaluations by patients and staff
- Through critical use of the available evidence based guidelines.
- Teaching conferences

**Required Reading and Resources:**
- **Hematology textbooks**:
  o *Hematology: Basic Principles and Practice* by Ronald Hoffman, Edward Benz, Sanford Shattil, and Bruce Furie (2009)
- **Oncology Textbooks**:
  o *Principles and Practice of Oncology* by Vincent T. DeVita, Samuel Hellman, and Steven A. Rosenberg (2011)
- PDQ (Physician Data Query) is NCI’s comprehensive cancer database available at [http://www.cancer.gov/cancertopics/pdq/cancerdatabase](http://www.cancer.gov/cancertopics/pdq/cancerdatabase). This database contains peer-reviewed summaries on cancer treatment, screening, prevention, genetics, and supportive care, and complementary and alternative medicine; a registry of more than 8,000 open and 19,000 closed cancer clinical trials from around the world; and directories of physicians, professionals who provide genetics services, and organizations that provide cancer care.
- American Society of Clinical Oncology continuing medical education products and other resources on professional development and training programs available at [www.asco.org](http://www.asco.org). Click on *Education & Training*.

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Expectations:
- Punctual attendance for all patient care activities, lectures, and regularly scheduled conferences. If a personal or family emergency occurs that requires absence or tardiness, call ASAP to arrange any necessary coverage, including continuity clinic, as well as the attending/faculty.
- Completion of the above learning objectives

Evaluation:
- Residents, fellows, and attending/faculty will evaluate each other by using the New Innovations evaluation form. Supervising attending is expected to meeting mid month with rotating residents to discuss their performance to date and give useful suggestions for improvement (i.e. formative feedback).
- Log all procedures in the New Innovations Procedure Logger.

Contact: Fellowship Coordinator at (502) 852-4121
Updated: June 29, 2015

University of Louisville
Medical Oncology and Hematology Fellowship Curriculum
INPATIENT ROTATIONS/SERVICES

PGY 5-6: Inpatient Service – University of Louisville Hospital, Jewish Hospital, and Robley Rex Veterans Affairs Medical Center

Goals of rotation:
1. Diagnose, work-up and treat common oncologic and hematologic disorders in the inpatient setting
2. Collaborate effectively with teams of professional health care providers

Learning Objectives for Rotation
- Patient Care: PGY 5-6 residents (fellows) will demonstrate:
  - Competence in hematology/oncology-targeted history and exam.
  - Ability to begin initial workup and staging of hematology and oncology problems, and management of the complications of therapy.
  - Understanding of:
    - Indications for hematology/oncology 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
    - Sensitivity and specificity of specific physical exam maneuvers
    - Patient cultural and moral differences when planning therapy
    - Complete at least 20 bone marrow biopsies/aspirates
    - Manage intravascular catheters
    - Give intrathecal chemotherapy

- Medical Knowledge: PGY 5-6 residents (fellows) will acquire knowledge of the epidemiology, etiology, pathophysiology, risk factor, clinical manifestations, exam and diagnostic evaluation findings, and appropriate ambulatory and inpatient management of:
  - Mass suspicious for cancer
  - Anemia
  - Thrombocytopenia
  - Leucopenia
  - Disorders of hemostasis
  - Myeloproliferative disorders (acute and chronic leukemias, lymphomas, paraproteinemias, etc)
  - Oncologic emergencies including spinal cord compression, neutropenic fever, tumor lysis syndrome, hypercalcemia
- Understand relationship between cancer staging and treatment options, and combined contributions of medical, radiation, and surgical oncology in cancer therapy.
- Acquire knowledge of basic principles of cancer chemotherapy, including hormonal and biologic therapies, and common side effects.
- Recognize the distinction between treatment plans for cure, for prolongation of life, and for palliation of active symptoms.
- Understand the principles of pain management, including the use of opioid analgesics and adjunctive medications.
- Understand the principles of terminal patient care, specifically inpatient and home hospice programs:
  - Specifically:
    - Recognize when to initiate hospice care in elderly patients
    - Understand the appropriate use of canniboids as appetite stimulants
    - Understand proper communication of poor prognosis
- Understand long-term complications of cancer and its therapy, including the common side effects of chemotherapy agents.
- PGY 5-6 residents (fellows) will:
  - Formulate a prioritized differential diagnosis
  - Formulate and appropriate initial diagnostic and therapeutic plan
  - Read about each patient encounter in general hematology and medical oncology texts
  - Demonstrate a progression in knowledge and analytical thinking.
  - Formulate a plan based on current scientific evidence.
  - Anticipate and minimize adverse consequences of therapy.
- Acquire knowledge of specific principles of cancer chemotherapy, including hormonal and biologic therapies, and common side effects.
  - Specifically:
    - How to use molecular testing for prognosis and treatment decisions
    - Recognize and treat anthracycline extravasation
    - Recognize the pharmacogenetic factors on chemotoxicity
    - Understand the adverse effects of chemotherapy, toxicity of chemotherapeutic agents, cardiac toxicity of chemotherapy, and contraindications to chemotherapy
    - Understand appropriate chemotherapy dosing
    - Understand drug interactions with chemotherapeutic and chemotherapy agents
    - Understand the pharmacology of Irinotecan
    - Recognize complications of pharmacotherapies used in end of life care
    - Understand appropriate treatment with fluoropyrimidine
    - Understand treatment of patients with compromised renal function
    - Recognize Gilberts syndrome
    - Recognize common adverse effects of antiemetic drugs
    - Recognize neutopenic sepsis
    - Recognize adverse effects of bevacizumab in elderly patients
- **Practice Based Learning and Improvement:** PGY 5-6 resident (fellows) should:
  - Utilize available resources to make timely and appropriate diagnostic and management decisions.
  - Emphasize the use of evidence-based medicine.
  - Understand the appropriate interpretation of clinical trial results
  - Understand appropriate basic statistical measures
  - Recognize appropriate clinical trial eligibility
  - Understand intention to treat analysis
  - 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.
Model independent learning.
Identify knowledge deficits and work to remedy them.
Assume administrative responsibilities

**Interpersonal and Communication Skills:** PGY 5-6 residents (fellows) should:
- Demonstrate availability 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.
- Demonstrate the ability to communicate bad news in a caring and appropriate manner.

**Professionalism:** PGY 5-6 residents (fellows):
- 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.

**Systems Based Practice:** PGY 5-6 residents (fellows) will:
- Become familiar with the practice of inpatient hematology/ oncology at a hospital.
- Access and utilize necessary resources within these systems to provide optimal patient care, including EBM and costs conscious strategies.
- Effectively coordinate care with other health care professionals.
- Guide patients through the complex health care system, if needed.
- Effectively use EMRs
- Participate in committees

**How Learning Objectives are met:**
- Direct patient care with close interaction and supervision by a hematology and medical oncology attending/faculty, to include work and bedside rounds on the inpatient service.
- Integrate evaluations by patients and staff
- Through critical use of the available evidence based guidelines.

**Required Reading and Resources:**

**Hematology textbooks:**
- Hematology: Basic Principles and Practice by Ronald Hoffman, Edward Benz, Sanford Shattil, and Bruce Furie (2009)

**Oncology Textbooks:**
- Principles and Practice of Oncology by Vincent T. DeVita, Samuel Hellman, and Steven A. Rosenberg (2011)

**Literature searches done to optimize patient care and supplement knowledge. Suggested journals:** *Journal of Clinical Oncology, Blood, Annals of Internal Medicine, and New England Journal of Medicine.*

**PDQ (Physician Data Query) is NCI’s comprehensive cancer database available at** [http://www.cancer.gov/cancertopics/pdq/cancerdatabase](http://www.cancer.gov/cancertopics/pdq/cancerdatabase). This database contains peer-reviewed summaries on cancer treatment, screening, prevention, genetics, and supportive care, and complementary and alternative medicine; a registry of more than 8,000 open and 19,000 closed cancer clinical trials from around the world; and
directories of physicians, professionals who provide genetics services, and organizations that provide cancer care.

- American Society of Clinical Oncology continuing medical education products and other resources on professional development and training programs available at www.asco.org. Click on Education & Training.

**Expectations:**

- Punctual attendance for all patient care activities, lectures, and regularly scheduled conferences. If a personal or family emergency occurs that requires absence or tardiness, call ASAP to arrange any necessary coverage, including continuity clinic, as well as the attending/faculty.
- Completion of the above learning objectives

**Evaluation:**

- Residents, fellows, and attending/faculty will evaluate each other by using the New Innovations evaluation form. Supervising attending is expected to meeting mid month with rotating residents to discuss their performance to date and give useful suggestions for improvement (i.e. formative feedback).
- Log all procedures in the New Innovations Procedure Logger.
- Teaching conferences

**Contact:** Fellowship Coordinator at (502) 852-4121
Updated: June 29, 2015

**University of Louisville**

**Medical Oncology and Hematology Fellowship Program Curriculum**

**Inpatient Palliative Care Consultations at University Hospital**

Prepared by: Palliative Medicine Fellowship Program Director, and Goetz Kloecker, M.D., F.A.C.P., M.B.A., Hematology and Medical Oncology Fellowship Program, University of Louisville

Original date: July 29, 2011

**PGY 4-5: Inpatient, University Hospital**

**Goals of the Rotation:**

1. Gain appreciation of the role of palliative care in the total care of the cancer patient
2. Gain skills in symptom management and discussing end of life issues.

**Learning Objectives for the Rotation**

- **Patient Care:** accomplished via hospital consults, interdisciplinary rounds, team meetings, and attending rounds; evaluated by attending evaluation
  - PGY 4-5 residents will demonstrate the ability to:
    o Perform an appropriate and detailed history and physical examination, targeting the patient or surrogate’s understanding of the medical condition, decisionality, expressed goals of care and common distressing symptoms such as pain.
    o Appropriately initiate and adjust intravenous and oral pain medications.
    o Address non-pain symptoms in the palliative care patient, including nausea, constipation, dyspnea, terminal delirium, depression, and anxiety.

- **Medical Knowledge:** accomplished via hospital consults, attending rounds, and interdisciplinary rounds; evaluated by attending evaluation and pretest at beginning of rotation.
  - All PGY 4-5 residents will
    o Know how to assess decisional capacity
    o Know the types of advance directives and identify legal next of kin for patient in the absence of such directives.
    o Know the steps for communicating bad news.
    o Recognize the utility of palliative performance scale in determining prognosis.
Familiarize themselves with the ethical issues regarding futility, euthanasia, physician-assisted suicide, artificial nutrition and hydration, and palliative sedation.

Familiarize themselves with the data required to assist families and patients in making end-of-life decisions (resuscitation survival data, guides to life expectancy, data regarding feeding tubes, etc).

Formulate an appropriate initial diagnostic and therapeutic plan.

Practice-Based Learning and Improvement: accomplished via hospital consults, interdisciplinary and attending rounds, pretest at beginning of rotation, and team meetings; evaluated by attending evaluation.

All PGY 4-5 residents will

Utilize available resources to make timely and appropriate diagnostic and management decisions.

Emphasize the use of evidence-based medicine.

Seek formative feedback, and use it to improve performance.

Demonstrate self-motivation to acquire knowledge.

Model independent learning by identifying and remedying knowledge deficits.

Interpersonal and Communication Skills: accomplished via hospital consults, multidisciplinary and attending rounds, and team meetings; evaluated by attending evaluation.

All PGY 4-5 residents will

Demonstrate the ability to conduct a family conference.

Demonstrate the ability to communicate bad news in a caring and appropriate manner.

Identify the questions and wishes of the consulting physician.

Facilitate the education of other health care professionals

Professionalism: accomplished in all educational and patient care activities; evaluated by attending evaluation.

All PGY 4-5 residents will

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.

Respect and uphold the patient wishes regarding their health care when ethically possible.

Understand and begin to implement effective strategies to foster personal development, attitudes, and coping skills necessary in the care of critically-ill patients

Systems Based Practice: accomplished in multidisciplinary and attending rounds; evaluated by attending evaluation.

All PGY 4-5 residents will

Facilitate hospice care in nursing home, home or inpatient setting.

Learn to work with health team members in an interdisciplinary setting to maximize meeting the needs of palliative care patients.

Effectively coordinate care with other health care professionals.

Guide patients throughout the complex health care system as needed.

Demonstrate knowledge of methods to control health care costs while preserving high quality care, especially in the prescribing of medications and/or services in hospice patients.

Required Reading: Orientation binder given on 1st day of the rotation

Suggested Reading: EPEC sections and articles distributed by the attending.

Expectations:

Punctuality and attendance for all patient care activities and weekly fellowship conference. If a personal or family emergency arises requiring tardiness or absence, call Palliative Care attending ASAP and the Chief Medical Resident (CMR) to arrange any necessary coverage.

Arrive at 9:00 am on the first day, complete required materials (pre-test, needs assessment, and contact information sheet), and hand in to Lana Highfill, department secretary.

Begin daily attending rounds at 9:30 am in the Palliative Care Offices on the 3rd floor of the ACB with the interdisciplinary team.

Be available for consults between 8am and 5pm Monday through Friday; pager coverage to be arranged with attending. There is no call or weekend duty on this rotation.
- Attend weekly Palliative Medicine Fellowship conferences on Tuesdays from 1-3 pm (or 1-4 pm when journal club combined with Geriatrics), either in the HCOC or Rudd Heart and Lung. Contact Amy Kiper (852-7945) for copies of journal club articles (if applicable) and lecture schedule with locations.

**Evaluation:**
- Residents and attendings evaluate each other via the www.new-innov.com evaluation form. Supervising attendings are expected to meet mid rotation with rotating residents to discuss their performance to date and to give useful suggestions for improvement.

**CONTACT** Lana Highfill (Department Secretary) 561-8800(office) or 332-1460(team pager).

**TREATMENT PROTOCOLS**
Several investigational trials are open at the Brown Cancer Center, UofL. Please ask your attending and/or call the clinical trials office at 502-562-4304 for more information.

**CHEMOTHERAPY**
There are certain safeguards for patients receiving chemotherapy that should be followed. These include fully apprising the patient of the therapeutic plan, heading orders “chemotherapy” and including details of body surface area, weight, doses, and administration, and countersigning of chemotherapy orders by the hem/onc attending.

This is how chemotherapy orders must be written:
1. Title “Chemotherapy Orders”.
2. Name of the patient, diagnosis, treatment protocol.
3. Height, weight, BSA, CrCl if needed.
4. Pre-treatment labs with guidelines for ANC, platelets, ejection fraction, hold chemotherapy for X number of days if XXX and re-check labs on YYY, call physician if ZZZ, etc.
5. Pre-medications.
6. Chemotherapy agents: name, dose (XX mg/m²) YY mg, how and when to administer.

**BLOOD SMEARS**
Thorough evaluation of a properly prepared and stained blood smear is a crucial part of the assessment of virtually every hematology consultation, and a full description of the smear should be included in every consultation note. A good smear should be available when a patient is to be seen on rounds with the attending. There are a couple of ways to obtain a good smear:
1. Obtain an extra smear from the Clinical Lab by requesting it by an order in the patient's chart. Be sure any smear is labeled with the patient's name and the date it was prepared. Blood smears on patients we are following should be kept until the patient is discharged. Certain smears may be filed for future reference.
2. Obtain a smear from the lab more quickly than above by interaction with the technicians.
3. Make a finger-stick smear yourself at the bedside and ask the Clinical Lab to stain it for you.

The proper description of a blood smear includes comments on the red cells, white cells, and platelets. Thus a minimal description of a normal smear would state: “the red cells are normochromic and normocytic, no abnormal white cells are seen, platelets are normal in number and morphology.” Obviously abnormal smears may require much longer descriptions. Any abnormality should be semi-quantified with adjectives such as mild/moderate/marked or rare/occasional/frequent.

**BONE MARROWS**
The following policies are currently in place and will be strictly followed:
1. **No fellow is allowed to perform a bone marrow aspiration / biopsy until he/she completes ten (10) attending supervised procedures and documents them in the enclosed form (Appendix C) and New Innovations.**
2. A fellow must complete a total of at least twenty (20) bone marrow aspiration/biopsy procedures during their training period to successfully graduate from the program.
3. Bone marrow can be done at the BMT clinic, VA BM clinic, scheduled out patient and inpatient. A request for a bone marrow examination on a patient is a request for consultation (see above). The Bone Marrow Service is a combined effort of the hem/onc section and the hematopathology section of the pathology service. When a bone marrow is planned, the laboratory technician should be contacted to request his/her assistance and to schedule the date and time of the procedure (which should be good for both!). The procedure, as excerpted from the hematopathology Procedure Manual, is contained below.

A ward resident may perform the bone marrow aspiration or biopsy at the discretion of the hem/onc fellow/resident and his supervisor. Though a relatively simple procedure, bone marrow aspiration or biopsy, if not done properly, may result in undue discomfort or hazard to the patient and may yield less than optimum material for diagnostic evaluation. The techniques of marrow aspiration and biopsy are described below. Adherence to the routine procedure will insure uniform good quality material for morphological evaluation. Following marrow aspiration or biopsy, a clearly headed procedure note must be written in the patient’s chart. On the rare occasion when a marrow must be done at an odd time when a technologist is not available, the fellow/resident will have to prepare the material. The hem/onc fellow/resident is to ask and obtain from the pathology service a peripheral blood smear, 2 Wright stained slides, an iron stained slide and any other pertinent slides, and to provide a formal report of these and all other marrows. All of the slides will be reviewed at the heme-morphology conference on Friday afternoon.

Bone marrows may be done in the patient's hospital room. If done at the BCC clinic, patients will check in at the clinic window for the procedure, where a clinic sheet will be generated on which the procedure note and any discharge orders may be written.

A number of special studies may be done on bone marrow specimens, and it is the responsibility of the hem/onc fellow/resident to ascertain when these are appropriate (in discussion with the attending) and make plans for them so that unnecessary repetition of bone marrows is avoided. When a hematopathology technician is assisting with the procedure, he/she will provide the necessary tubes, lab slips, etc.:

1. **Biopsy imprints (touch preps):** these are usually stained with Wright's stain and may provide useful cellular morphologic information in marrows where a good aspirate cannot be obtained.
2. **Special stains:** such as Sudan Black, PAS, specific and non-specific esterase: These are useful in classifying acute leukemias.
3. **Culture:** for bacteria, mycobacteria, fungi.
4. **Cytogenetics studies:** put 2 cc of marrow into a small green-top (heparin) tube for transfer to the Cytogenetics Lab.
5. **Flow cytometry studies for surface markers:** put 2 cc of marrow in a green-top (heparin) tube. These studies are done in hematopathology. Occasionally it may be appropriate to save a specimen for possible flow cytometry pending review of the stained marrow aspirate.

Learning to read, interpret, and report bone marrow aspirations is an important part of the hematology rotation for fellows. Residents also are encouraged to review marrows and learn how to read them formally. The attending will provide necessary training and oversight. The fellow is responsible for reading each marrow and preparing a formal report (see below). His interpretation should be fully written up within one week of obtaining the specimen. The marrow and the written report will then be reviewed with the attending and any changes in wording and interpretation agreed upon. The report, written legibly in good English and full sentences (not outline form) by the fellow or resident, will be proofread by the attending and dictated as an addendum to the consultation note. The report on the biopsy sections will be prepared by Pathology and copies distributed as above. Biopsy sections should be reviewed by the resident/fellow and attending with the pathologist. Since preparation of the final marrow reports requires some time, it is helpful for the fellow/resident to put a preliminary note on the chart indicating the marrow findings.

**Bone Marrow Reading and Report:** a full description of the peripheral smear and at least a 100-cell differential white blood cell count on the peripheral smear done by the fellow/resident are part of the marrow report. In preparing the marrow report, 200-500 nucleated cells must be counted, and the actual differential count could be included on the report.

The narrative report of the aspirate should mention at least the following:

1. **Cellularity:** judged by direct smear and particles.
2. **Megakaryocytes:** number and morphology (if abnormal).
3. **Erythropoiesis:** activity (increased, normal, decreased - relatively or absolutely), normoblastic or megaloblastic, orderly or abnormal, adequacy of hemoglobinization, etc.
4. **Granulocytopoiesis:** activity, orderly or abnormal, proportions of cells at various maturation stages, etc.
5. **M/E ratio:** report the number and whether it is high, low, or normal.
6. **Lymphocytes, plasma cells, histiocytes, eosinophils:** mentioned only briefly unless abnormal.
7. Special abnormalities - if certain important abnormalities are present, such as leukemic cells, their morphology should be described in detail.
8. Tumor cells: present or absent; describe if present.
9. Iron: presence or absence on iron stain of aspirate.
10. Describe any special stains or biopsy imprints done.

The marrow report concludes with an Impression. This should be based primarily on morphology. Discussion of differential diagnosis is better included on the consultation note. For example, one would write "Hypercellular bone marrow specimen with marked megaloblastic changes involving erythroid and myeloid elements" rather than "Pernicious anemia" since the latter requires more than just the morphological information. A sample bone marrow report is included below.

INFORMED CONSENT

Signed consent is obtained from patients for the following:
1. Bone marrow aspiration/biopsy
2. Prior to the first administration of a chemotherapeutic regimen (not required for subsequent administrations)
3. Blood transfusion
4. Therapeutic phlebotomy

For items 2-4 consent should be obtained by the physician prescribing the treatment, for example the physician in hem/onc clinic, even if he/she is not on the service.
Hematology Bone Marrow Assist Checklist

### Scheduling
Arrange with unit.

### Consent
- Obtain an informed consent from the patient.
- Have a signed copy available at the time of the procedure.
- Complete a **Bone Marrow Biopsy and Aspiration Procedure Note & Attestation** form (e-forms) and have it placed on the patient’s chart.

### Ordering
- Order the appropriate tray prior to the schedule procedure.
  - Biopsy Tray, Safety Plus Jamshidi Tray – Lawson #457226
  - Aspirate Tray (sternal Illinois-type needle) – Lawson #106564
- Enter all orders into CPOE, or ask the unit staff to do so. Select order set needed:
  - **Bone Marrow Aspirate Set**: includes Bone Marrow Aspirate, Flow Cytometry (L/L Panel) studies, Cytogenetics (Chromosome Analysis).
  - **Bone Marrow Aspirate w/Cultures Set** if Microbiology tests required. Includes above tests as well as specific Micro tests. Scroll through and select specific cultures/tests needed: Fungal Culture, Bacterial Culture, AFB Culture, Parvo, etc.

### When Ready
Review the tests needed so a total volume of material will be clearly defined at the procedure onset.

### No Technologist Assistance
- Dispense the first 2 mls of aspirate into an EDTA tube (cap the tube; invert to mix).
- Label all tubes with the patient’s name, hospital number, legible collector’s name, and time of collection.

**Bring all samples to the Manual Hematology area of the Lab, including the following:**
- Purple tube with 2 ml aspirate for smears (Wright-Giemsa and Iron) and Cell Block,
- Green or Purple tube for Flow Cytometry (if needed),
- Green tube for Cytogenetics (if needed),
- Purple tube for Microbiology (if needed),
- Core biopsy in a labeled formalin container (if performed). Write time placed in formalin on the container and on the Pathology Consult form,
- Touch preps (if done),
- **Completed Pathology/Surgical Consultation form (see e-forms)**
POLICY ON FELLOW SUPERVISION
DIVISION OF MEDICAL ONCOLOGY AND HEMATOLOGY FELLOWSHIP PROGRAM
UNIVERSITY OF LOUISVILLE

In accordance with the Office of Graduate Medical Education at the University of Louisville, as required by the Accreditation Council of Graduate Medical Education (ACGME), the following policy on fellow supervision for the Division of Medical Oncology and Hematology Fellowship program reflects and is in compliance with the requirements put forth by the Hematology/Oncology Residency Review Committee and the ACGME.

I. The program director and program coordinator of the Division of Medical Oncology and Hematology Fellowship Program must know and adhere to the Hematology/Oncology RRC requirements for fellowship supervision.

II. Fellows must be appropriately supervised by clinical faculty attending at all times and in such a way that the individual fellow is allowed to assume progressively increasing responsibilities according to their level of education, ability, and experience. The teaching staff of the respective program is responsible for determining the level of responsibility accorded each resident.
   1. Faculty supervision assignments should be of sufficient duration to assess the knowledge and skills of each fellow and delegate to him/her the appropriate level of patient care authority and responsibility.
   2. Each fellow must know the limits of his/her scope of authority, and the circumstances under which he/she is permitted to act with conditional independence.
   3. In particular, PGY4-6 are supervised indirectly with direct supervision immediately available.

III. The chief fellow serves in a supervisory role to junior fellows and rotating residents in recognition of their progress toward independence, based on the needs of each patient and the skills of the individual fellow. However, all fellows have access to a supervisory attending at all times.

IV. Fellows must be present and discuss all of their outpatient clinic patients with the supervising attending without exception.

V. To ensure oversight of fellow supervision and graded authority and responsibility, the program uses the following classification of supervision from the ACGME Common Program Requirement effective July 1, 2011:
   1. Direct Supervision – the supervising physician is physically present with the resident and patient.
   2. Indirect Supervision with direct supervision immediately available – the supervising physician is physically within the hospital or other site of patient care, and is immediately available to provide Direct Supervision.
   3. Indirect Supervision with direct supervision available – the supervising physician is not physically present within the hospital or other site of patient care, but is immediately available by means of telephonic and/or electronic modalities, and is available to provide Direct Supervision.
   4. Oversight – The supervising physician is available to provide review of procedures/encounters with feedback provided after care is delivered.

VI. The monthly on call schedule is distributed to clinic staff, in service hospital staff, clinical faculty and fellows at least 5 days prior to the beginning of each month. The monthly on call schedule clearly identifies the fellow on call per week and the attending on call per weekend. Staff should contact the fellow on call with patient concerns during the hours of 5:00 PM – 8:00 AM.

VII. If at any time Fellows are concerned about the availability or level of supervision, they should contact Dr. Goetz Kloecker, Program Director.
MOONLIGHTING POLICY
MEDICAL ONCOLOGY AND HEMATOLOGY FELLOWSHIP PROGRAM
UNIVERSITY OF LOUISVILLE
JAMES GRAHAM BROWN CANCER CENTER

Revised December 1, 2015

1) The Medical Oncology/Hematology Fellowship Training Program does not require fellows to participate in outside employment activities (moonlighting).

2) Moonlighting is defined, per the ACGME, as voluntary compensated medically related work performed inside (internal) or outside (external) the institution where the resident is currently training. At the University of Louisville Extra Duty Pay is a specific form of internal moonlighting whereby a resident or fellow voluntarily assumes additional call or service responsibilities within the parameters of his or her training program for additional compensation. (It is the only form of moonlighting that J-1 visa holders are permitted to do).

3) Hours worked in patient care while moonlighting will count towards the 80 hour/week ACGME maximum guideline.

4) PGY 4 are not permitted by ACGME rules to moonlight.

5) Upper Level fellows (PGY5-6) shall be free to use off-duty hours in appropriate related activities, including engaging in outside employment activities, as long as:
   a) They obtain prior written approval from the Program Director, and
   b) Such activities do not interfere with the fellows’ obligations at the University, impair the effectiveness of the educational program and/or cause detriment to the service and reputation of the hospital to which the fellow is assigned.

6) Moonlighting is not allowed under any of the following circumstances (no exceptions):
   a) Monday to Friday from 6 AM to 6 PM.
   b) Any time while “on-call.”
   c) The total weekly work-hour exceeds 80.
   d) The fellow is not accomplishing academic excellence.
   e) Not approved by the Program Director.

7) Moonlighting may be allowed if all the following apply:
   a) The fellow is accomplishing academic excellence
   b) Must hold either a Regular or Residency Training License in Kentucky.
   c) The total weekly work-hour does not exceed 80.
   d) The request is done in writing using the “Moonlighting Request Form”
   e) Approved by the Program Director based on following criteria for academic excellence:
      - the fellow has an above average in-service score in Hematology/Oncology
      - shows sufficient effort in the research requirement
      - demonstrates professional excellence (e.g. chief fellow)
   f) The fellow provides every month a written report detailing the dates, times and total number of hours spent engaged in outside employment activities. This report should be submitted to the Program Coordinator prior to the last working day of the month the moonlighting was performed.

8) The University of Louisville does not provide professionally liability insurance or any other insurance or coverage for fellow off-duty activities or employment, and assumes no liability or responsibility for such activities or employment.

9) Institutional practice (IP) and Residency/Fellowship Training (FT) licenses are valid only for duties associated with the University training program for which these licenses are issued, and does not cover outside employment activities, therefore, cannot be used for moonlighting.

10) Fellows found to be in violation of this policy will be subject to disciplinary action as detailed in the University of Louisville School of Medicine House Staff Agreement.

11) This moonlighting policy is consistent with the moonlighting policy of the University of Louisville. Fellows must comply with both policies.

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University of Louisville

Division of Medical Oncology/Hematology
Fellowship Moonlighting Policy

TO: Goetz H. Kloecker, M.D., M.B.A., M.S.P.H., F.A.C.P.
Director, Medical Oncology/Hematology Fellowship Program

FROM: ________________________________

DATE: ____________

I have read and acknowledged the University of Louisville Hematology/Oncology fellowship moonlighting policy
and I like to request permission to moonlight during the following:

This form MUST be updated monthly. Requests to moonlighting can only be done for a MAXIMUM of one month at a time. Please Complete and return this form to Saira Malik prior to the moonlighting.

SERVICE: ________________________________

On call dates during the month: ________________________________
Malpractice Insurance: ________________________________ Malpractice insurance for moonlighting is the responsibility of the fellow and will not be paid for the Univeristy

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Total Number of Days: ________ Total Number of hours: ________

Requestor Signature: ________________________________ Date________________

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POLICY ON FELLOW DUTY HOURS
DIVISION OF MEDICAL ONCOLOGY AND HEMATOLOGY FELLOWSHIP PROGRAM
UNIVERSITY OF LOUISVILLE

PART I

In accordance with The Accreditation Council on Graduate Medical Education (ACGME) and the Office of Graduate Medical Education at the University of Louisville School of Medicine, the following written policies governing resident duty hours are in compliance with the standards set forth by the ACGME.

1. Each fellow in the Division of Medical Oncology/Hematology Fellowship Program must log hours worked in the Med Hub system at least once per week. Fellows must log hours for each rotation that they are assigned. Rotations include: inpatient service at University of Louisville Hospital, Jewish Hospital, and Veterans Affairs Medical Complex; outpatient clinic service at James Brown Graham Cancer Center and Veterans Affairs Medical Complex; Research and Elective rotations; and call activities in which the fellow had to come in to the hospital. Fellows must also log vacation days.

2. Fellow duty hours must not exceed 80 hours per week averaged over four weeks which is inclusive of all in-house call activities and all moonlighting. Duty hours are defined as all clinical and academic activities related to the residency program, i.e., patient care (both inpatient and outpatient), administrative duties related to patient care, the provision for transfer of patient care, time spent in-house during call activities, and scheduled academic activities such as conferences.

3. All Hem/Onc Fellows are in their final years of education (as defined by the Review Committee) and should have eight hours free of duty between scheduled duty periods, but there may be circumstances (as defined by the Review Committee) when these fellows must stay on duty to care for their patients or return to the hospital with fewer than eight hours free of duty. All instances must be recorded in the duty hours log and are monitored by Dr. Goetz Kloecker, Program Director.

4. All Hem/Onc Fellow duty assignments must not exceed 24 hours maximum continuous on-site duty with up to 4 additional hours permitted for patient transfer and other activities defined in RRC requirements. There must be no new patients assigned after 24 hours of continuous duty. In unusual circumstances, fellows, on their own initiative, may remain beyond their scheduled period of duty to continue to provide care to a single patient. This should be justified by needed continuity of care in a critically ill patient, academic importance of an event or humanistic attention to the needs of a patient or family. The fellow must hand over care of all other patients to the team responsible for continuity of care and then document the reasons for remaining. This documentation should be submitted to Dr. Goetz Kloecker, Program Director, for every instance of overage. Dr. Kloecker must review each submission of additional service and track both individual resident and program-wide episodes in New Innovations.

5. Should any fellow spend time in the hospital during at-home call, those hours must be counted toward the maximum 80 hours. At-home call must not be so frequent as to preclude rest and reasonable personal time for residents.

6. Fellow requests for moonlighting must be approved in advance and monitored by the Dr. Kloecker, Program Director. Hem/Onc fellows may only participate in moonlighting if the following conditions have been met: 1) The fellow is accomplishing academic excellence; 2) The fellow is not on University of Louisville Hospital Service, or Jewish Hospital Service, Bone Marrow Transplantation Service, or is assigned to On-Call duty; 3) The total moonlighting and regular duty assignments do not exceed the 80 duty hour limit; 4) The fellow provides monthly written reports detailing the times and total number of hours spent engaged in outside employment activities to the Program Coordinator no less than the last working day of the month that the moonlighting activity was performed.

8. All fellows, including those assigned at-home call, must be provided with 1 day in 7 free from all educational and clinical responsibilities, averaged over a four-week period, inclusive of call. One day is defined as one continuous 24-hour period free from all clinical, educational, and administrative activities. At home call cannot be assigned on these days.
9. Dr. Kloecker, Program Director, must monitor resident stress and fatigue. Incoming fellows are educated on recognizing the symptoms of fatigue and/or stress during their program orientation prior to beginning training. Current fellows may read the program policy on fatigue, posted on the program’s website, at any time.

11. Fellows have at all times the appropriate support and supervision of supervising attending physicians. In patient service rotations and clinic rotations are scheduled to allow for continuity of patient care between transitioning fellows and attending physicians.

12. The Graduate Medical Education Committee is responsible for and has established procedures for reviewing requests for exceptions to the weekly duty hours limits of up to 10 percent or a maximum of 88 hours. Requests must be justified on educational grounds and must be approved by the GMEC before consideration by the appropriate Residency Review Committee.

13. The GME Office will conduct quarterly time audits (August, November, February, and May) in order to provide our teaching hospitals the duty hours documentation required for Medicare reimbursement.

PART II - ACADEMIC PROBATION FOR FAILURE TO LOG DUTY HOURS

All residents/fellows who sign contracts through the GME Office are required to enter their duty hours in the New Innovations (NI) system weekly. Residents/fellows who are found in violation of this requirement will be recommended for academic probation. The process for this recommendation is as follows:

1. The GME Office will generate an “hours logged” report for each program the first week of each month that will show which residents/fellows have not logged hours for the previous month (i.e., a report of residents/fellows who have not logged hours for December will be run the first week of January).

2. These reports will be faxed to the appropriate Program Directors by the 10th of each month. Program Directors or Coordinators are responsible for notifying the residents of the impending probationary action.

3. Once the reports are distributed, residents will be given until the 15th to enter the missing hours. The GME Office will provide the appropriate Program Directors with an updated report at the monthly GMEC meeting.

4. If the resident/fellow has not entered the missing hours by the last day of the month, it will be recommended to the Dean that the resident/fellow be placed on academic probation. A copy of the recommendation will be forwarded to the resident/fellow and the Program Director.

5. Once placed on probation, the resident will be given an additional 7 days to complete the appropriate duty hour entries. If not entered by the end of 7 days, a recommendation for suspension from program activities and payroll will be forwarded to the Dean.

6. Please contact the GME Office if you have any questions or concerns regarding this policy or duty hour entry in NI.

PART III - PROTOCOL FOR ADDRESSING DUTY HOUR VIOLATIONS

The GMEC Subcommittee titled the Resident Educational and Work Environment Subcommittee will meet every other month and as needed. Duty hour or educational environmental concerns will be brought to and addressed by the committee through the following channels:

1. There will be an administrative staff member of the GME office dedicated to duty hour monitoring. The Educational Environment Administrative Assistant (AA) will monitor duty hour exceptions across all programs and report to the Assistant Dean for Oversight of Resident Educational Environment, as well as to the GMEC Subcommittee. This AA will report areas where persistent problems are noted in order for the committee to work with Program Directors, Departments or others to facilitate solutions.

2. The position of Oversight of Resident Educational Environment Officer is an Assistant Dean position within the GME. He/she will receive weekly reports from the Educational Environment AA regarding duty hour exceptions and help identify areas of difficulty within programs. The Oversight of Resident Educational Environment Officer will liaise with the appropriate Program Directors to address system issues interfering with duty hour compliance.
The Oversight of Resident Educational Environment Officer will be an ad-hoc member on the GMEC Subcommittee. This position will have the support of the Associate Dean of Graduate Medical Education as well as the Dean of the Medical School.

3. The Oversight of Resident Educational Environment Officer will also serve as the Faculty Duty Hours Ombudsman. Residents can raise duty hour concerns with the Ombudsman anonymously and without fear of intimidation or retaliation.

4. In addition, there will be two peer-elected Resident Ombudsmen, who will sit on the GMEC Subcommittee to provide a further option for residents to raise concerns anonymously. They will be elected by the Resident House Staff Council from a group of volunteers. They must be from separate programs. It is recommended that they be from programs with little shared faculty or rotations.

5. The GMEC Subcommittee will report to the Associate Dean for Graduate Medical Education as well as the GMEC.

6. In the event that recurrent duty hour violations within a program cannot be resolved through the efforts of the Program Director and Oversight of Resident Educational Environment Officer, the GMEC Subcommittee will meet to investigate and address problems with the support of the Associate Dean for Graduate Medical Education.

7. In addition to monitoring duty hour compliance, the GMEC subcommittee will also monitor resident work environment by reviewing each program’s Annual Resident Survey (ARS) from the ACGME and each program’s Annual Program Review (APR). An aggregate report of the results of both the survey and the APR will be submitted to the Subcommittee. The survey information will be compared to the University as a whole as well as the specialty national aggregate data and the overall national aggregate data. The APR will be reviewed for all of the required components as well as the responsiveness of the program to key issues that were noted by residents and faculty. Each program will be required to create an action plan within the report. The Oversight of Resident Educational Environment Officer and the GMEC subcommittee will monitor progress in completion of the action plans. If needed, they will provide support and advocacy on behalf of the residents and/or program director as they work toward achieving appropriate service-education balance and creating a welcoming educational milieu.

**MedHub**

1. Procedure Logger

Procedure Logger is a highly customizable tool designed to track and report on Procedure performance and credentialing. All procedures, such as bone aspirations, must be logged. This will be monitored by the Fellowship Program Coordinator, House Staff and the GME office. Currently, only bone marrow biopsy/aspirations are required to be logged.

2. Conference Attendance

Conferences that are attended, such as those listed on page one of this handbook, are required to be logged. Signing your own name on the attendance roster at each conference will be documented in MedHub by the Program Coordinator.

3. Evaluations

Both faculty and fellow evaluations are remitted and stored within MedHub. Evaluations include: Service rotations, outpatient clinic rotations, research, electives, program, and nurse evaluations.

   o The Hem/Onc program reviews all completed evaluations. “If a Hem/Onc faculty member receives repeated poor evaluations from the fellows, the faculty member will lose the privilege of having a fellow in their clinic.
   o Fellows evaluations are reviewed by the Program Director and the Clinical Competency Committee. The Clinical Competency Committee will meet at least on a semi-annual basis to review each fellow’s progress and qualifications.
Duty hour logs, procedure logs, and evaluations are required by the ACGME and GME office. For assistance in logging duty hours and procedures use the help menu in MedHub or contact the Program Coordinator.

**The Clinical Competency Committee.**

1.a) At a minimum the Clinical Competency Committee must be composed of three members of the program faculty. Others eligible for appointment to the committee include faculty from other programs and non-physician members of the health care team. (Detail)

There must be a written description of the responsibilities of the Clinical Competency Committee. (Core)

The Clinical Competency Committee should:

(a) review all resident evaluations semi-annually

(b) prepare and assure the reporting of Milestones evaluations of each resident semi-annually to ACGME

(c) advise the program director regarding resident progress, including promotion, remediation, dismissal.

**The Program Evaluation Committee**

(1) must be composed of at least two program faculty members and should include at least one resident.

(2) must have a written description of its responsibilities.

(3) should participate actively in:

(3).(a) planning, developing, implementing, and evaluating educational activities of the program; (Detail)

(3).(b) reviewing and making recommendations for revision of competency-based curriculum goals and objectives

(3).(c) addressing areas of non-compliance with ACGME standards; and, (Detail)

(3).(d) reviewing the program annually using evaluations of faculty, residents, and others.

**Division of Medical Oncology/Hematology**

**Evaluation Criteria and Procedures Policy**

*Updated 4.11.2014*

A. Evaluation of Fellows

- **Oral Evaluations from Faculty:** Faculty provide ongoing oral feedback during all in-service rotations, elective/research rotations, and outpatient continuity clinics. This feedback focuses on medical knowledge, clinical judgment, procedure skills, and professionalism. Oral feedback is discussed privately with the fellow and each faculty strives to provide constructive feedback in regards to each area of the Core Competencies.

  Faculty may also discuss fellow performance at the semi-annual Clinical Competency Committee meetings or monthly faculty meetings. The Program Director and Division Chief are always available for urgent concerns.

- **Written Evaluations from Faculty:** Written evaluations occur on a monthly basis for in-service rotations and elective/research rotations. Outpatient continuity clinics are evaluated in writing every two months. Faculty complete the evaluations within the MedHub System and evaluations are kept confidential. The Program Director reviews all written evaluations on a semi-annual basis as a part of the fellow’s semi-annual review meeting. The semi-annual review form is completed and signed by both the Program Director and the fellow. All fellows have a final, cumulative review with the Program Director before ending their program.
• **Written Evaluations from Nursing Team:** Nurses also have access to the MedHub system and complete anonymous, confidential semi-annual reviews on the fellows. These reviews are discussed in the semi-annual fellow reviews.

• **Remediation:** Should a fellow receive poor written evaluations or if a faculty member approaches the Program Director regarding a deficiency concern, the Program Director will bring together the Clinical Competency Committee for development of a remediation plan. The remediation plan will be written and presented to the fellow at a meeting with the Program Director and a faculty representative from the Clinical Competency Committee. The Clinical Competency Committee and Program Director will monitor the fellow’s improvement and determine if further remediation is needed.

**B. Evaluation of Faculty**

• **Written Evaluations from Fellows:** Standard forms are in place for fellows to anonymously evaluate their attending’s performance. Fellows evaluate their faculty following each in-service rotation and research/elective rotations and every two months for outpatient continuity clinics. The Program Director compiles the faculty evaluations and submits them to the Division Chief. These evaluations are used in the annual faculty performance reviews.

• **Remediation:** If a Hem/Onc faculty member receives repeated, poor evaluations from the fellows, the faculty member will lose the privilege of having a fellow in their clinic. The Program Director will provide the Division Chief copies of the faculty evaluations. The Division Chief will develop a plan of remediation for the faculty member.

**C. Evaluation of the Program**

• **Fellow Evaluation of the Program:** Fellows have the opportunity to provide feedback on the program during their semi-annual review meeting with the Program Director. This feedback is documented on the semi-annual review forms. Fellows also may address program items at the quarterly fellowship meetings. An anonymous program evaluation is also completed by fellows once a year prior to the annual program review meeting.

• **Faculty Evaluation of the Program:** Faculty have the opportunity to provide written feedback anonymously on the annual program evaluations. The evaluations are reviewed by both the Program Director and Division Chief.

• **Annual Review:** The Program Director, Program Coordinator, fellows, and faculty members gather in May for the annual program review meeting. Items such as the ACGME surveys, board passage rates, scholarly activity, anonymous program surveys, and previous action plans are reviewed at the annual meeting. This meeting is documented with minutes and any applicable plans of action are set for the new academic year.

**ACLS and BLS Certifications**

The fellowship program requires that each fellow maintain and active certification of ACLS during their training. If the certification lapses, a 30 day grace period will be given. Beyond the 30 day delinquency is cause for placement on academic probation and possible removal from service without pay.

Please contact the fellowship coordinator for payment directions regarding your ACLS course. The ACLS course fee is covered by the fellowship program.

You may contact the listed services below to schedule a training session:

Nursing Education Office – University Hospital  
Katie Sutlles  
502-562-4824  
katiesu@ulh.org
University of Louisville Policies and Procedures

The Hematology/ Medical Oncology Fellowship Program is a dependent subspecialty of the U of L Internal Medicine Program. It is the Fellow’s responsibility to follow the University’s and the Program’s policies. Please visit http://louisville.edu/medschool/gme/policies.htm for details to all the University’s policies.

Policy on Fellow Fatigue and/or Stress

Recognition of Excess Fatigue and/or Stress
- Inattentiveness to details
- Forgetfulness
- Emotional Liability
- Mood swings
- Increased conflicts with others
- Lack of attention to proper attire or hygiene
- Difficulty with novel tasks and multitasking
- Awareness is impaired

The demonstration of resident excess fatigue and/or stress may occur in patient care settings or in non-patient care settings such as lectures and conferences. In patient care settings, patient safety, as well as the personal safety and well-being of the resident, mandates implementation of an immediate and a proper response sequence. In non-patient care settings, responses may vary depending on the severity of and the demeanor of the resident’s appearance and perceived condition. The following is intended as a general guideline for those recognizing or observing excessive resident fatigue and/or stress in either setting.

Patient Care Settings

- Attending Clinician:
  1. In the interest of patient and resident safety, the recognition that a resident is demonstrating evidence for excess fatigue and/or stress requires the attending or supervising resident to consider immediate release of the resident from any further patient care responsibilities at the time of recognition.
  2. The attending clinician or supervising resident should privately discuss his/her opinion with the resident, attempt to identify the reason for excess fatigue and/or stress, and estimate the amount of rest that will be required to alleviate the situation.
  3. The attending clinician must attempt, in all circumstances without exception, to notify the chief/supervising resident on-call, program director or department chair, respectively, depending on the ability to contact one of these individuals, of the decision to release the resident from further patient care responsibilities at that time.
  4. If excess fatigue is the issue, the attending clinician must advise the resident to rest for a period that is adequate to relieve the fatigue before operating a motorized vehicle. This may mean that the resident should first go to the on-call room for a sleep interval no less than 30 minutes. The resident may also be advised to consider calling someone to provide transportation home.
  5. The attending should notify the on-call hospital administrator for further documentation of advice given to the resident removed from duty.
  6. If stress is the issue, the attending upon privately counseling the resident, may opt to take immediate action to alleviate the stress. If, in the opinion of the attending, the resident stress has the potential to negatively affect patient safety, the attending must immediately release the resident from further patient care responsibilities at that time. In the event of a decision to release the resident from further patient care activity; notification of program administrative personnel shall include the chief/supervising resident on-call, program director or department chair, respectively, depending on the ability to contact one of these individuals.
  7. A resident who has been released from further immediate patient care because of excess fatigue and/or stress cannot appeal the decision to the responding attending.
  8. A resident who has been released from patient care cannot resume patient care duties without permission of the program director or chair when applicable.

- Fellows
  1. Fellows who perceive that they are manifesting excess fatigue and/or stress have the professional responsibility to immediately notify the attending clinician, the chief fellow, and the program director without fear of reprisal.
2. Fellows recognizing fatigue and/or stress in other fellows should report their observations and concerns immediately to the attending physician, the chief fellow, and/or the program director.

- **Program Director**
  1. Following removal of a resident from duty, in association with the chief resident, determine the need for an immediate adjustment in duty assignments for remaining residents in the program.
  2. Subsequently, the program director will review the resident’s call schedules, work hour time cards, extent of patient care responsibilities, any known personal problems, and stresses contributing to this for the resident.
  3. The program director will notify the departmental chair and/or program director of the rotation in question to discuss methods to reduce resident fatigue.
  4. In matters of resident stress, the program director will meet with the resident personally as soon as can be arranged. If counseling by the program director is judged to be insufficient, the program director will refer the resident to the Aid to Impaired Residents Program (AIRs) by direct contact with the Designated Institutional Official (DIO) and Director of Graduate Medical Education (GME).
  5. If the problem is recurrent or not resolved in a timely manner, the program director will have the authority to release the resident indefinitely from patient care duties pending evaluation from an individual designated by the AIRs Program. (This will represent academic deficiency as described in the institutional policy on Academic Review.)
  6. The program director will release the resident to resume patient care duties only after advisement from the AIRs Program and will be responsible for informing the resident as well as the attending physician of the resident’s current rotation.
  7. If the AIRs Program feels the resident should undergo continued counseling, the program director will be notified and should receive periodic updates from the AIRs representative.
  8. Extended periods of release from duty assignments that exceed requirements for completion of training must be made up to meet RRC training guidelines.

- **Non-Patient Care Settings**
  If residents are observed to show signs of fatigue and/or stress in non-patient care settings, the program director should follow the program director procedure outline above for the patient care setting.

- **Leave of Absence Policy**
  Residents requesting a Leave of Absence must do so under the corresponding GME policy in place for that type of leave. These policies are available in the Resident Policies and Procedures Manual available online at [http://louisville.edu/medschool/gme/current-residents](http://louisville.edu/medschool/gme/current-residents).
  
  - Any leave of absence must be in compliance with the ACGME Program Requirements for Medical Oncology and Hematology concerning the effect of leaves of absence, for any reason, on satisfying the criteria for completion of the residency program.
  - The leave of absence must also be in compliance with the eligibility requirements for certification by the American Board of Internal Medicine.
RESIDENT LEAVE REQUEST FORM
Worksheet

NAME: ___________________________ PROGRAM: _____________ PG level________

A. Number of calendar days requested

a._________

REASON______________________________________________________________

Anticipated Actual

Start of Leave: ____________ ____________

Return Date: ____________ ____________

B. Unused Vacation Days (maximum 28 calendar days per year)1

b._________

Indicate # days advanced, from other years, if any________, included on line B.

C. Program Director’s discretionary personal/educational days (maximum 14 calendar days per year)2
c._________

D. Associate Dean for Graduate Medical Education

Additional Paid Days3 (requires signature of Assoc. Dean for Graduate Medical Education)
d._________

E. Total Paid Leave Time (add lines b+c+d)=
e._________

Exact dates: __________________________________________________________

F. Total Unpaid Leave Time4 (Graduate Medical Student Leave) (subtract line e from a)=
f._________

Exact dates: __________________________________________________________

G. Amount of Time to be Made-up to meet Board Certification Requirements5: ____________ weeks.

Dates: ______________________________________________________________

Resident Signature ____________________________________________

Program Director/Chairman Signature Date

__________________________________________ Date

Assoc. Dean for Graduate Medical Education

__________________________ Date

1 U of L Graduate Medical Education Policy requires all unused vacation time be used toward maternity sick/leave (Resident Policies & Procedures Manual, Section 11.C, page 22).

2 At the discretion of the Department Chairperson and Program Director, two weeks (14 days) of educational or personal leave may be granted (Resident Policies & Procedures Manual, Section 11.A, page 20).
Additional paid leave may be requested by the Program Director and Departmental Chairman and approved by the Associate Dean for Graduate Medical Education (Resident Policies & Procedures Manual, Section 11. C, page 22). Requests for approval of additional leave must be submitted in writing to the Associate Dean for Graduate Medical Education.

Amount of time away from program may require make-up time to fulfill RRC and/or Board Certification requirements.

Rev. 12/04/01; 05/20/2004; 4/20/2005; 04/2007; 02/2008
APPENDIX A

TECHNIQUES OF BONE MARROW ASPIRATION AND BIOPSY

If only an aspirate is needed, it may be obtained from the sternum or the ileum. If a biopsy is to be taken as well, the anterior or posterior iliac crest is the preferred site. The resident/fellow must make the necessary preparations and schedule the procedure as outlined above. The procedure should be described in advance to the patient and explained during the course of the procedure. Proper preparation leads to increased patient cooperation and lessens the likelihood of severe discomfort to the patient. A signed note is entered in the chart immediately. It should be clearly headed and describe the procedure (site, nature of skin prep, anesthetic used, and some indication of lack of complications and patient’s tolerance of procedure).

**Sternal Aspiration:** a site is chosen, usually at a level between the 2nd and 4th intercostal spaces. The skin is prepped, and the area is draped. The skin, subcutaneous tissues, and periosteum are infiltrated with local anesthetic (after ascertaining that the patient has no sensitivity to the drug). For sternal puncture the Illinois needle with adjustable guard (see picture below) is preferred. With the stylet in the needle, it is inserted through the skin (a tiny incision with a surgical blade will help) until the tip of the needle rests on the bone. The guard is lowered until it rests tightly on the skin and is then rotated up 2-3 turns (each full 360 degree turn = 1 mm). With firm pressure and rotation the tip of the needle is pushed into the marrow cavity (which is 6-7 mm deep). Entrance into the marrow space can usually be felt, and the needle is then firmly anchored in the bone and does not wobble. The stylet is removed, and about 1 ml of marrow is aspirated into a 10-ml syringe. Any additional samples needed are aspirated, and the needle is removed. Firm pressure is applied with a sterile sponge over the site to stop any bleeding, and a band-aid is applied. If there is any question as to whether marrow has been obtained, it is well to keep the needle in place or sterile until the technician sees whether or not marrow particles are present in the specimen, so that a second attempt may be made if necessary.

**Iliac Aspiration and Biopsy:** scheduling, obtaining supplies, and preparation of the patient are carried out as described above. The biopsy may produce greater discomfort than aspiration, and premedication with an analgesic and/or tranquilizing agent may be useful in some cases. The sites used are the posterior superior iliac spine or the area adjacent to the anterior superior iliac spine (see pictures below). We use the Jamshidi needle pictured below.

**Posterior superior iliac spine:** the patient lies on one side or prone on a firm surface. After location of the proper site, skin preparation, draping, and administration of local anesthetic, a small skin incision is made, and the needle is inserted with the stylet in place and advanced to the cortex of the bone. The needle may be held with the proximal end in the palm and the index finger against the shaft to stabilize and control it. The needle is pointed toward the anterior superior iliac spine and advanced through the bony cortex of the posterior superior spine with firm pressure and a back-and-forth rotary motion. Entrance into the marrow cavity is usually felt by decreased resistance. If the needle is firmly anchored in the bone, the stylet is removed, and an aspirate is obtained as described in the section on bone marrow procedure.

The stylet is then replaced and the needle withdrawn from the cortex and redirected into a new adjacent area of bone to obtain a biopsy. When the cortex is again penetrated and the needle anchored, the stylet is removed, and the needle is advanced millimeter by millimeter, using a rotary motion for better cutting. The probe may be used to determine how far the needle has been advanced through the marrow. When the needle has advanced far enough to obtain an ample specimen (10 mm or more), the biopsied specimen may be “broken loose” by pulling the needle back 2-3 mm, redirecting its tip at a slightly different angle, and readvancing it 2-3 mm and by several quick rotations of the needle back and forth along its axis. Then the needle and specimen are removed slowly with alternating rotary motions. Applying suction by pulling back on the barrel of a syringe attached to the needle, as the needle is removed, may help to retain the specimen. The specimen is removed by inserting the probe through the cutting end of the needle.
Anterior superior iliac spine: the patient usually lies on his back. The ilium can be penetrated easily just below and behind the spine (where the bone is less dense than in the crest itself). In this case the direction of the needle is roughly horizontal. Or the spine itself may be penetrated with the needle directed downward and slightly cephalad. The remainder of the procedure is as outlined above.

Following aspiration and biopsy, pressure is applied over the site and a band-aid applied. A procedure note is entered in the patient’s chart.

References

EXAMPLE OF BONE MARROW REPORT

Name of the patient
Date of exam: November 30, 1988
Aspirate Site: L Post iliac
Biopsy Site: L Post iliac
Special Studies: ___
Clinical diagnosis: Chronic myelomonocytic leukemia

Hematocrit 22.3%, Retic. Count 1.1%, MCV 90fl, WBC Count 18.4/ul, Platelet Count 296,000/ul, Band Neutrophil 8%, Seg. Neutrophil 21%, Lymphocyte 12%, Monocyte 57%, Eosinophil 2%, Basophil %,
Other:

Blood Smear: the red cells are generally normochromic. There is mild anisocytosis with both microcytes and macrocytes present. There is mild poikilocytosis with some elliptical cells and rare fragmented cells. There is an obviously increased number of white blood cells. The differential count is shown above. The monocytes are heterogeneous in appearance. Most have markedly convoluted nuclei. Some have cytoplasmic vacuoles, and a rare cell appears immature with a nucleolus. The remainder of the white cells appear normal. Platelets are present in normal numbers.

Bone Marrow Aspirate: the direct smear and spicules are markedly hypercellular. Megakaryocytes are present in normal numbers. No tumor cells are seen. No stainable iron is seen on the iron stained
A smear, but the smear is not optimal for iron stores. Erythropoiesis is reduced relative to myelopoiesis. It is generally orderly, but occasional cells show loosening of the nuclear chromatin. Myelopoiesis is orderly with mostly intermediate and mature cells present. The M/E ratio is 3.6:1. Cells counted as monocytes or monocytic precursors comprise about 25% of the enumerated cells. These monocytic cells differ from those in the peripheral blood in generally being smaller with round, rather than convoluted, nuclei. It should be noted that the distinction between intermediate granulocytes, such as metamyelocytes, and cells counted as monocytes and monocyte precursors is difficult.

**Impression:** hypercellular marrow aspirate with increased myelopoiesis and large numbers of monocytes and monocyte precursors. The monocytosis also is apparent in the peripheral blood smear. The overall picture is compatible with the previously diagnosed chronic myelomonocytic leukemia.

**BONE MARROW PROCEDURE**

I. **Schedule**
All marrows are scheduled by the hematology staff, fellow, or resident who calls Hematopathology and gives the following information:
   a. Name, location, and hospital number of patient
   b. Doctor's name
   c. Date and time for marrow
   d. Indicate if any of the following will be needed:
      i. Cultures
      ii. Cytogenetic studies
      iii. Flow cytometry
      iv. Other (e.g. special stains for acute leukemias)

II. **Materials**
Ask the technologist to have the necessary materials and paperwork available at the time of the procedure.

III. **Paperwork**
1. Ask the technologist to stamp all appropriate requisition forms and have those available for the physician to complete.
2. The physician performing the marrow will complete the consent form and the Pathology request form and will write a Procedure Note in the patient's chart.

IV. **Procedure for performance of marrow**
1. The procedure will be performed or supervised by a staff member, fellow, or resident on the hem/onc service.
2. One 12 cc and one 20 cc syringe will be lightly heparinized with less than 0.1 ml (100 U) of sterile heparin.
3. We do not routinely premedicate patients for bone marrows, but for very anxious or sensitive patients a preliminary dose of opioid or tranquilizer may be appropriate. After skin prep, draping, injection of local anesthetic, and insertion of the marrow aspirate needle into the marrow, approximately 1/4 cc of marrow will be aspirated into the heparinized 12 cc syringe. The syringe will be handed to the technician to prepare the slides. A second heparinized 20 cc syringe will be attached to the marrow needle and sufficient additional marrow aspirated for the studies desired. Depending on the studies planned, marrow may be aspirated into a third syringe. The syringe will be set-aside for the technician, and the physician will end the procedure or proceed to the biopsy.

V. **Peripheral blood smears**
The technologist will prepare 4 finger-stick smears for Wright's stain (peripheral blood smears from the blood drawn on the same day are acceptable). Rarely peripheral smears will be made for iron stains and special stains.
VI. Handling marrow aspirate for smears
1. Slides of aspirate: these will be made from the 1/4 ml of marrow in the first heparinized syringe. A small volume of marrow will be discharged onto each of 4-6 slides. At least 10 "Push" smears will be made by picking up marrow on the edge of 1 slide and making a push smear on another slide. Spicule preparations will be made using the 4-6 slides onto which the marrow was discharged. The slides will be elevated at one end to allow the blood to drain off and spicules to remain behind. We thus will have at least 10 "push smears" and at least 4 "spicule smears".
2. Disposition of aspirate smears: Push smears: 4 for Wright's stain and 6 saved unstained (these will be used for special stains if needed.). Spicule smears: 2 for iron stain and 2 or more saved unstained
3. Slides for hem/onc: When staining is completed, the following will be requested for hem/onc: 2 Wright's stained marrow push smears, 1 iron-stained spicule smear and 2 Wright's stained peripheral blood smears.
4. Slides for hematopathology: All other stained and unstained slides will be put with a copy of the requisition form in a box for the pathologist.

VII. Handling marrow aspirate for other studies and biopsy
1. Other studies are done from the second heparinized syringe that contains a larger volume of aspirate
2. Flow cytometry
   a. 2 ml in green-top (heparin) tube
3. Cytogenetics
   a. 2 ml in green-top (heparin) tube
4. Cultures
   a. Obviously these specimens must be kept sterile
   b. Bacteria
      i. 1 ml in Difco ESP aerobic blood culture vial
      ii. 1 ml in Difco ESP anaerobic blood culture vial
   c. Mycobacteria
      i. 1 ml in BACTEC 13A vial
   d. Fungus
      i. 3 ml in a sterile tube without medium (red-top or green-top)
   e. Deliver these appropriately labeled specimens with appropriate lab slips immediately to Pathology Service.
5. Marrow clot
   a. An unanticoagulated (or even a lightly heparinized) specimen may be put in fixative for the preparation of clot sections.
6. Biopsy
   a. Put in fixative for H and E staining. Rarely, touch preps will need to be made before fixation to be stained with Wright's or other stains.

INTRATECAL CHEMOTHERAPY FOR PROPHYLAXIS OR TREATMENT OF MENINGEAL LEUKEMIA OR LYMPHOMA

Fellows are required to have at least 3 attending supervised and documented i.t. chemotherapies given before under the discretion of the attending to do the procedure on their own.

Drugs and doses for adults
1. Methotrexate 12 mg
2. Cytarabine (Ara C) 100 mg

Preparation
Write an order (which must be countersigned by a hem/onc attending) for the Pharmacy to prepare the drug in preservative-free diluent for intrathecal administration. Once prepared and delivered to the floor, the drug should be used within 2 hours; it cannot be stored for later use.
Administration
Perform a standard lumbar puncture. Withdraw a volume of spinal fluid equal to the volume of drug to be administered. Send the fluid for cell count, cytospin (done automatically at some hospitals if a cell count is ordered), protein, glucose, and culture. Inject all the medication slowly (1-2 minutes), assuring that there continues to be free flow into the spinal canal by occasionally withdrawing and reinjecting a small amount of CSF into the syringe.

Ommaya Reservoir
Administration of intrathecal chemotherapy via an Ommaya involves use of a special needle (as with a Port-a-Cath) and follows the principles outlined above. After injection of the drug and removal of the needle, the medication can be gently "pumped" into the spinal fluid by repeated pressure on the reservoir.

CENTRAL LINES

Central venous catheters are not a requirement for the chemotherapy used by the Hematology Section. Even vesicant drugs can be given through a well-functioning peripheral IV. However, central lines are useful in some patients for a variety of reasons. The selection of those patients and specific lines employed is individualized.

Port-a-Cath or PAS Port
Ports in the chest wall (with line to the subclavian vein) or antecubital area are implanted subcutaneously. This is done by Radiology Special Procedures (Vascular Lab). Insertion and removal are minor surgical procedures (30-60 min.). Protection for antecubital site: no blood pressures or venipunctures in that arm. It is not necessary to have a dressing over the port. Accessing: use special noncoring needle with or without an extension set. May draw blood; discard first 2 ml. Flush: heparin (100 U/ml), 3 ml. Flush after each use and every 4 weeks.

PICC Line
There are various kinds. There is usually a single lumen with hub (Luerlock) and injection cap. Double-lumen lines do exist. Insertion: percutaneously, is simpler than Port-a-Cath. There is a suture at the skin entry site. Insertion is done by Radiology Special Procedures. Protection: no blood pressures or venipunctures in that arm. For dressing: clean area, cover with 4x4, then transparent cover, taped at edges. Change dressing every 2-3 days. Accessing: Regular needle via injection cap. Change injection cap regularly depending on use. May draw blood; discard first 2 ml. Flush: Heparin (100 U/ml), 3 ml after each use and every day. May also use 5 ml normal saline.

Tunneled lines
Types: Groshong, Hickman. These are subclavian lines tunneled under skin with exit on chest wall. Done by Surgery. Port is not subcutaneous, but tunneling may decrease likelihood of infection.
APPENDIX B

MORPHOLOGIC DIAGNOSIS AND CLINICAL ASSESSMENT OF SEROUS EFFUSIONS

By: Lung T. Yam, M.D.

Under normal circumstances, there are small amounts of fluid present in the pleural, peritoneal, pericardial, and synovial cavities. These serous fluids are usually not clinically detectable and are readily available for clinical studies; they are always of pathologic significance. Since these effusions are related to pathologic processes involving the serous cavities, it may be possible to unveil both the cause of effusion formation and the magnitude of cavity involvement if these effusions are carefully studied.

At the present, studies of serous effusions are considered routine laboratory tests. Aliquots of the specimen are typically sent to the laboratory services for such specific analysis as cell count and differential, presence of microbials, malignant cells, and chemical composition, and in some instances, special cytochemical or immunocytochemical studies. Often these analyses are performed by specialized staff in specialized laboratories and are incorporated into the routine of that laboratory. Individual study results are thus reported without benefit of close approach to analysis of effusions can effectively generate much data; however, it may not help to formulate a unifying interpretation of the various individual findings made within the context of the patient’s clinical presentation.

Since the cells in effusion represent tissue response to the causative insults to the serous cavities, careful cytologic studies of the effusions should yield diagnostic information, or information which would serve to guide the clinicians to more definitive studies. They would also help to accurately assess the clinical progress of the patient with effusion. The information gained by cytologic studies should be interpreted with clinical observations and other laboratory results to formulate a suitable strategy for optimal patient care (Table II). To best apply this approach to cytdiagnosis, it is imperative that the cytologic techniques be simple and familiar to both clinicians and laboratory-based individuals including cytopathologists and technologists. The technique using Romanowsky stains on air-dried smears serve this purpose well (1,2). To enhance the effectiveness of cytologic observations, specific cell markers may be used to accurately identify cells. The cytochemical markers commonly used for hemopoietic cells also can be appropriate for cells. The immunologic markers should help to characterize the non-hemopoietic cells, particularly the metastatic cancer cells. The scope of this discussion, however, will be limited to morphologic study of effusions and how this can aid in the diagnosis and assessment of patients with serous effusions.

Five types of effusions can become available for cytologic evaluation. These include pleural, peritoneal, pericardial, synovial, and cerebrospinal fluids. Although each of these fluids has its owns characteristics, the basic approach for cytologic studies is similar for all. The pleural effusion is hereafter used to illustrate our basic approach to cytologic studies of serous effusions.

When a patient presents with pleural effusion, there is a need to assess the clinical condition of the patient and determine the cause for the effusion. The basic approach for the cytologic studies is to determine the cellularity, to recognize the cellular patterns, and to identify the cell types (Table II). The transudative effusions have low protein content and contain few cells (Tables I & II). They will be found on cytologic examinations to have a clean background, to be hypocellular, and to contain very few neutrophils. Most of the nucleated cells present are either lymphocytes or mesothelial cells. The exudative effusions, on the other hand, are hypercellular and often have a messy background. In those cases with an acute inflammatory reaction (e.g., pneumonia), many neutrophils are present.

When toxic changes such as cytoplasmic toxic granulation and vacuolization are noted, karyorrhexis and intracellular bacteria are seen in the neutrophils, and the diagnosis of a pyogenic infection (empyema) can be made with certainty. Effusions with hypercellularity and lymphocytosis are chronic inflammatory exudates and are most often caused by such disorders as tuberculosis, malignancies, or nonspecific chronic pleuritis.

Here, accurate recognition of the cell types and their relative abundance, together with close clinical correlation, are necessary for a complete interpretation of the cytologic findings. Tuberculosis is highly
suspected when the effusions are hypercellular and contain many mature lymphocytes and few or no basophilic mesothelial cells. These findings should direct the clinician to request the appropriate cultures and pleural biopsies in an attempt to establish this diagnosis. In lymphocytic effusions due to malignancies, the discovery of malignant cells will confirm the diagnosis. In lymphocytic effusions due to malignancies, the discovery of malignant cells confirms the diagnosis of pleural involvement. Patients with chronic pleuritis and lymphocytic effusions often give a previous history of either inflammation or irradiation to the pleural cavities (Table III).

It is clear that determination of cellularity and recognition of cellular patterns help to differentiate between transudates and exudates and are significant to the differential diagnosis of serous effusions. Thus, hypocellularity is characteristic of a transudative process while hypercellularity is exudative in character. Moderately cellular fluids may either be transudates or exudates and require further clinical and laboratory information for accurate classification. It should be kept in mind that if the pleural effusion is caused by two coexisting disorders, it may exhibit the characteristics of both disorders. For example, in a patient with congestive heart failure and metastatic oat-cell carcinoma, the effusion may be Hypocellular and have low protein contents (typical transudate) but also have many oat cells and markedly elevated lactic acid dehydrogenase activity (exudative characteristics). Proper cytologic interpretation can be made in such cases by close correlation with clinical findings (Tables I & III).

Critical cytologic assessment of individual cells in the effusions will furnish further precise information. For example, the diagnosis of either lymphoma or reactive lymphocytosis may be established on the appreciation of the morphologic characteristics of the lymphocytes. Many of the cells in the most effusions are those hemopoietic cells commonly seen in blood. Only the mesothelial cells are uniquely present in the effusions (4). Occasionally, rare, benign, foreign cells such as the squamous cells of skin, liver, and lung cells may be seen. Cells outside of these should be considered foreign to the serous cavities and are well established and should facilitate the identification of these cells in serous effusions (Table IV). Although it may be possible to recognize the malignant cells as those of squamous cells carcinoma, adenocarcinoma, hemopoietic or undifferentiated neoplasms (Table V), it is possible only in rare occasions to identify the primary site of the malignant tumor with metastasis to the serous cavities (Table VI). It would be more reassuring to use cytochemical and immunochemical techniques in addition to morphology to facilitate the identification of the malignant cells recognition of the cell type, and discovery of the primary site.

It should be remembered that the effusions and their cells in the cavities are in a dynamic state and that any specimen examined represents merely the cytologic character of the response to the underlying disease at one point in time. Therefore, accurate assessment of the patient’s clinical condition from cytologic examination of the effusions requires multiple samples for study. This point may be illustrated in the patient with pneumonia and pleural effusion. In the early phase of the pneumonic process, the patient is usually acutely ill and has fever, chills, productive cough, and chest pain. A small pleural effusion may be detectable. The fluid is frequently hypercellular and may contain many erythrocytes. Many neutrophils and basophilic mesothelial cells are present. In a few days the chest pain gradually subsides, the effusion increases, and the patient may develop dyspnea. At this time the effusion contains many neutrophils, basophilic and degenerative mesothelial cells, and macrophages; tissue debris and phagocytosis are often seen. If the patient is not properly treated and the pleural space becomes infected, the effusion may become empyematus, with severe neutrophilia and may contain many degenerated cells and tissue debris; numerous bacteria may be seen both inside and outside the cytoplasm of the phagocytes. After proper treatment for pneumonia has been instituted, the cells in the effusion decrease in number and the toxic charges in the neutrophils subside. Both in percentages and in number of neutrophils decrease and many macrophages and lymphocytes appear. As the pneumonic process continues to improve, the mononuclear cells increase and many eosinophils and plasma cells also may be seen. Should the pneumonic process suddenly worsen, neutrophilia reappears in the effusion.

Thus, it would appear that cytologic studies are most useful for the evaluation of the serous effusions. The adoption of a clinically oriented approach would further enhance the practical value of the cytologic studies as a part of the workshop in patients with serous effusions.
References


Table I. Properties of Pleural Transudates and Exudates

<table>
<thead>
<tr>
<th>Physical</th>
<th>Transudates</th>
<th>Exudates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity</td>
<td>&lt;1.015</td>
<td>&gt;1.015</td>
</tr>
<tr>
<td>Color</td>
<td>Pale, clear</td>
<td>Not pale or clear</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
<td>Fetid (infected)</td>
</tr>
<tr>
<td>PH</td>
<td>&gt;7.20</td>
<td>&lt;7.20</td>
</tr>
<tr>
<td>Coagulability</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td>Leukocyte</td>
<td>&lt;1000/mm³</td>
<td>&gt;1000/mm³</td>
</tr>
<tr>
<td>Chemical</td>
<td>Effusion/serum protein ratio</td>
<td>&lt;0.5</td>
</tr>
<tr>
<td>Effusion/serum LDH ratio</td>
<td>&lt;0.6</td>
<td>&gt;0.6</td>
</tr>
</tbody>
</table>
Table II. Cytologic Findings in Pleural Effusions

<table>
<thead>
<tr>
<th>Findings</th>
<th>Clinical Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cellularity (1⁺-4⁺)</td>
<td></td>
</tr>
<tr>
<td>Hypocellular (1⁺ - 2⁺)</td>
<td>Transudate</td>
</tr>
<tr>
<td>Moderately cellular/Hypercellular (3⁺ - 4⁺)</td>
<td>Exudate</td>
</tr>
<tr>
<td>Cellular Pattern</td>
<td></td>
</tr>
<tr>
<td>Neutrophilic</td>
<td>Acute Inflammation</td>
</tr>
<tr>
<td>Lymphocytic</td>
<td>Chronic inflammation</td>
</tr>
<tr>
<td>Mesothelial</td>
<td>Serous membrane irritation</td>
</tr>
<tr>
<td>Mixed</td>
<td>Variable</td>
</tr>
<tr>
<td>Individual Cells</td>
<td></td>
</tr>
<tr>
<td>Basophilic Mesothelial Cells Increased</td>
<td>Recent irritation to serous membrane</td>
</tr>
<tr>
<td>Degenerative Mesothelial Cells Increased</td>
<td>Serous membrane irritation</td>
</tr>
<tr>
<td>Neutrophilia</td>
<td>Acute inflammation</td>
</tr>
<tr>
<td>Neutrophilia with Toxic Changes</td>
<td>Pyogenic inflammation</td>
</tr>
<tr>
<td>Lymphocytosis (small cells)</td>
<td>Chronic inflammation, lymphoma</td>
</tr>
<tr>
<td>Lymphocytes (atypical)</td>
<td>Immunologic reaction, lymphoma</td>
</tr>
<tr>
<td>Macrophages</td>
<td>Serous membrane irritation</td>
</tr>
<tr>
<td>Eosinophilia</td>
<td>?</td>
</tr>
<tr>
<td>Miscellaneous*</td>
<td>Variable</td>
</tr>
</tbody>
</table>

* Including cells of skin, liver, lung, and spleen
### Table III. Typical Cytological Findings in Diseases Associated with Lymphocytosis

<table>
<thead>
<tr>
<th>Findings</th>
<th>Tuberculosis</th>
<th>Lymphoma</th>
<th>Carcinoma</th>
<th>Cardiopulmonary diseases</th>
<th>Pyogenic infections</th>
<th>Transudates</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cellularity</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++++</td>
<td>+++++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Lymphocytes,</td>
<td>&gt;80</td>
<td>&gt;80</td>
<td>&gt;50 in half of the cases</td>
<td>Usually 40-60</td>
<td>May be high in recovery stage</td>
<td>Variable</td>
<td>Variable</td>
</tr>
<tr>
<td>Morphology of lymphocytes</td>
<td>Small, mature</td>
<td>Bizarre, abnormal</td>
<td>Small, mature</td>
<td>Small, mature</td>
<td>Small, mature</td>
<td>Small, mature</td>
<td>Small, mature</td>
</tr>
<tr>
<td>Basophilic mesothelial cell</td>
<td>Rare or absent</td>
<td>May be present</td>
<td>Usually present</td>
<td>Present</td>
<td>Absent if infection severe and extensive</td>
<td>Present</td>
<td>Variable</td>
</tr>
<tr>
<td>Degenerated mesothelial cells &amp; histiocytes</td>
<td>Few in some cases</td>
<td>May be present</td>
<td>May be present</td>
<td>Present, frequently in sheets</td>
<td>May be absent</td>
<td>Present, may be numerous</td>
<td>Usually present</td>
</tr>
<tr>
<td>&quot;Balloon Cells&quot;</td>
<td>Absent</td>
<td>Absent</td>
<td>May be present</td>
<td>Present</td>
<td>Usually absent</td>
<td>Present</td>
<td>May be present</td>
</tr>
<tr>
<td>Neoplastic cells</td>
<td>Absent</td>
<td>Present as abnormal lymphoid cells</td>
<td>Present in 60% of the cases</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
</tr>
</tbody>
</table>

1 Atypical lymphocytes seen in one case of infectious mononucleosis.
2 Not to be confused with adenocarcinoma cells.

### Table IV. Cytologic Criteria of Malignancy

<table>
<thead>
<tr>
<th>Pattern:</th>
<th>Abnormal</th>
<th>Monomorphic</th>
<th>Pleomorphic</th>
<th>Pleomorphism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Gigantism, size of cell &amp; nucleus, markedly variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nucleus</td>
<td>Large, nucleolus prominent and deep blue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cytoplasm</td>
<td>Marked basophilia, presence of granules/inclusions and vacuoles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitoses</td>
<td>Many, abnormal</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---
### Table V. Typical Cytologic Findings of Various Malignancies in Serous Effusions

<table>
<thead>
<tr>
<th>Cytologic Findings</th>
<th>Adenocarcinoma</th>
<th>Squamous Cell Carcinoma</th>
<th>Hemopoietic Disorders</th>
<th>Anaplastic Carcinomas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of malignant cells</td>
<td>Numerous</td>
<td>Variable</td>
<td>Many</td>
<td>Variable, few in may sarcomas</td>
</tr>
<tr>
<td>Cellular pattern (mono- or pleomorphic)</td>
<td>Variable</td>
<td>Variable</td>
<td>Usually monomorphic</td>
<td>Variable</td>
</tr>
<tr>
<td>Cellular pattern cohesiveness/aggregation</td>
<td>Cohesive (glandular or cluster formation)</td>
<td>Frequently aggregate formation</td>
<td>Non-cohesive</td>
<td>Variable</td>
</tr>
<tr>
<td>Cell size</td>
<td>Variable, usually large</td>
<td>Variable, usually large</td>
<td>Small</td>
<td>Variable</td>
</tr>
<tr>
<td>Cell shape</td>
<td>Smooth cell margin, some cells have specialized surface cilia</td>
<td>Round, smooth cell margin</td>
<td>Round smooth cell margin</td>
<td>Variable</td>
</tr>
<tr>
<td>Nucleus/cytoplasmic ratio</td>
<td>Variable, my relatively small in well-differentiated types</td>
<td>Frequently high</td>
<td>High</td>
<td>Usually high</td>
</tr>
<tr>
<td>Cytoplasm</td>
<td>Vacuoles, inclusions</td>
<td>Variable</td>
<td>Deep blue, may have granules in granulocytes</td>
<td>Variable</td>
</tr>
</tbody>
</table>

### Table VI. Morphologic Identification of Primary Sites

<table>
<thead>
<tr>
<th>Primary Site</th>
<th>Histologic Features</th>
<th>Cytologic Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovary, Breast</td>
<td>Serous cystadenocarcinoma</td>
<td>Adenocarcinoma and malignant cells with cilia (Rocket)</td>
</tr>
<tr>
<td>Intestine</td>
<td>Adenocarcinoma</td>
<td>Malignant cells with brush borders</td>
</tr>
<tr>
<td>Hematopoietic Tissues</td>
<td>Hematopoietic malignancies</td>
<td>Abnormal hemopoietic cells</td>
</tr>
<tr>
<td>Lung</td>
<td>Oat-cell carcinoma</td>
<td>Malignant cells with characteristic features and cell arrangement</td>
</tr>
<tr>
<td>Melanoma</td>
<td>Melanotic melanoma</td>
<td>Melanin-containing malignant cells</td>
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</tbody>
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APPENDIX C

BONE MARROW ASPIRATION AND BIOPSY DOCUMENTATION FORM

Fellow Name: _____________________________________________

<table>
<thead>
<tr>
<th>Date</th>
<th>Patient Name</th>
<th>MR #</th>
<th>Location</th>
<th>Attending</th>
<th>Satisfactory</th>
<th>Comments</th>
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<tbody>
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</table>

Fellow's Signature: ______________________________ Date: ________________

Program Director’s Signature: ______________________ Date: ________________
APPENDIX D

USER’S GUIDES TO THE MEDICAL LITERATURE


2a. Guyatt GH, Sackett DL, Cook DJ. Users guides to the medical literature. II. How to use an article about therapy or prevention. A. Are the results of the study valid: Evidence-Based Medicine Working Group. JAMA 1993; 270:2598-601.

2b. Guyatt GH, Sackett DL, Cook DJ. Users’ guides to the medical literature. II. How to use an article about therapy or prevention. B. What were the results and will they help me in caring for my patients? Evidence-Based Medicine Working Group. JAMA 1994; 271:59-63.


7a. Richardson WS, Detsky AS. Users’ guides to the medical literature. VII. How to use a clinical decision analysis. A. Are the results of the study valid? Evidence-Based Medicine Working Group. JAMA 1995;273:1292-5.

7b. Richardson WS, Detsky AS. Users’ guides to the medical literature. VII. How to use a clinical decision analysis. B. What are the results and will they help me in caring for my patients? Evidence-Based Medicine Working Group. JAMA 1995;273:1610-3.


13b. O’Brien BJ, Heyland D, Richardson S, Levine J, Drummond MF. Users’ guides to the medical literature. XIII. How to use an article on economic analysis of clinical practice. B. What are the results and will they help me in caring for my patients? JAMA 1997;277:1802-6.


23b. Giacomini MD, Cook DJ. Users’ guides to the medical literature. XXIII. Qualitative research in health care. B. What are the results and how do they help me care for my patients? JAMA 2000; 284:478-82.


