# Hematopathology Fellowship, General Information and Rotations

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Hematopathology Fellowship

General Description and Overall Goals

Supervising Faculty

General Hematology: Weina Chen, M.D., Ph.D.; Hywyn Churchill, M.D., Ph.D.; Franklin Fuda, D.O.; Kirthi Kumar, M.D.; Hung Luu, M.D.; Ph.D.

Pediatric Hematology: Charles Timmons, M.D., Ph.D.; Hung Luu, M.D.; Daniel Noland, M.D.; Weina Chen, M.D., Ph.D.; Hywyn Churchill, M.D., Ph.D.; Kirthi Kumar, M.D., Ph.D.

Flow Cytometry: Weina Chen, M.D., Ph.D.; Hywyn Churchill, M.D., Ph.D.; Franklin Fuda, D.O.; Kirthi Kumar, M.D., Ph.D.

Molecular Diagnostics: Prasad Koduru, Ph.D.; Dwight Oliver, M.D.

Cytogenetics: Prasad Koduru, Ph.D.; Kathleen Wilson, M.D.

Coagulation: James Burner, M.D.; Nicole de Simone, M.D.; Ravindra Sarode, M.D.

Duration

1 year ACGME accredited Hematopathology Fellowship

Rotation Schedule

<table>
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<tr>
<th>Morphology 1 (consult/tissue): 4 months (outside cases and lymph node diagnosis)</th>
<th>Morphology 2 [(Lab Heme/PB/inside limited BM)/research]: 2 months</th>
<th>Flow cytometry: 4 months</th>
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<td>CG/molecular: 1 month</td>
<td>Coag: 1 month</td>
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**General Description**

The overall goal of the Hematopathology fellowship-training program is to provide broad-based training in the laboratory approach to the diagnosis of both benign and malignant hematologic disorders as well education in the structure, function and management of hematology-related laboratories. A multimodality approach is stressed, with incorporation of information from multiple sources; including clinical, hematologic, cytogenetic, flow cytometric, and molecular data. Although all fellow work will proceed under the supervision of an attending pathologist, the development of increasing degrees of independence and responsibility that commensurate with his or her ability and level of training are expected. The ultimate goal is to allow the fellows to function as effective laboratory consultants to their clinical colleagues; both in the interpretation of pathologic material and by providing input into the proper utilization and interpretation of laboratory tests for the patient work-up. Furthermore, through participation in research projects, conferences, journal club, and teaching activities, we hope that an academic approach to Hematopathology will be fostered, thus preparing fellows for careers in either the academic or community practices.

**Research Projects**

Fellows are expected to perform at least one research project of their own choosing with the guidance and assistance of one or more faculty members in the division. The expectation is for the fellow to get involved with research projects right away, so that they present the results of projects at national meetings, such as those of the United States and Canadian Academy of Pathology *(USCAP abstracts are due in early October!)* or the American Society of Clinical Pathologists (ASCP). Submission of a manuscript related to such project(s) to a peer-reviewed journal by the end of the fellowship should be the target.

**Weekend and Night Call**

The Hematopathology fellow is the first-line contact person for the on-call pathology resident with regard to after hours or weekend call related to hematology laboratory or Hematopathology. A Hematopathology faculty pathologist is available at all times to back up the fellow. The hematology fellow does not take any in-house overnight or weekend call.

The Hematopathology fellows will alternate this weekend and after-hours "beeper call" among themselves throughout the year, according to a set schedule. Fellows are responsible to coordinate with each other to exchange on-call days. Please provide these schedule changes to Deonna Wilson at least one week in advance of the date of the requested change.

**Notes**

- Any emergency bone marrow after routine hours will need faculty authorization – faculty should talk to the clinician who is requesting the marrow to ascertain urgent need.

- If you review a new acute leukemia while on-call, you are required to call and discuss the case (real-time) with the Hematopathology faculty on-call.
**Vacation/Leave Time**

The GME policy for leave time and the fellows’ House staff contract stipulates the amount and the use of leave time (please refer to those). Fellows should submit requests for time-off to the program director through 1/3/17 by 7/15/16. Fellows should submit requests for time-off through 6/30/17 (including their USCAP plan) by 12/30/16. Expectations for service coverage during the Hematopathology Fellowship differ, depending on the rotation. Coverage of the Morphology 1 service by one of the fellows is expected during this rotation. If time-off is needed during Morphology 1 service, then the fellows should coordinate with each other to ensure coverage for this service. During a 1-month flow cytometry rotation, a fellow may generally take up to 2 days off; however, finding another fellow to help with some coverage during this absence is preferred. Fellows should coordinate with each other to ensure coverage for flow cytometry if more than 2 days off is requested or needed. During the other 1-month rotations (Morphology 2a/b, CG/Molec, Coag), fellows generally may take up to 2 days off. If a fellow would like more time off during these rotations, then he or she should discuss this in advance with both the fellowship program director and the director of the rotation.

**MedHub Portfolio**

There are several activity log sheets and checklists that you will be expected to keep up-to-date; these can be found under a separate tab labeled “MedHub Portfolio.” Progress with these will be reviewed during your quarterly evaluations with the program director; please have these entered into MedHub prior to your meeting with her.

**Policies for Transitions of Care**

Please refer to section 3 for more details on Policies for Transitions of Care for Hematopathology fellows.

**Policy for Moonlighting**

Please refer to section 3 for more details on Policy for Moonlighting.

**Policy for Extended Duty Hours**

Please refer to section 3 for more details on the Policy for Extended Duty Hours.

**Conferences and Presentations**

Hematopathology fellows are expected to attend various conferences during their fellowship in Hematopathology. In addition to attendance, Hematopathology fellows are also required to present at several conferences. More information is included in the “conferences and presentations” segment of each service rotation’s section and in the “Conferences” tab of this handbook.

**Assessment Methods**

Patient care, medical knowledge, practice-based learning, interpersonal and communication skills, professionalism and systems-based learning are all assessed formally by at least two methods. The fellowship director summarizes these assessments and discusses the summary with the fellows during quarterly evaluations.

**Direct Observation:** Real-time feedback from faculty occurs on a daily basis with regard to all six of the Core Competencies.
**Multisource Assessment:** Assessment of competency in all of the six core competencies occurs in MedHub. Supervising faculty complete evaluations in MedHub on a quarterly basis. The program director reviews, summarizes and shares this information with the fellow at quarterly meetings. Multisource surveys that include evaluations from departmental staff (administrative staff, other support staff, laboratory technologists), additional health care professionals (Hematology-Oncology faculty and fellows; pathology residents) and a self-assessment (complete 360 evaluation) are either completed with supplemental documents or incorporated into MedHub.

**In-training examination:** Our program has fellows participate in the biannual Fellow In-Service Hematopathology Examination, offered by the ASCP in the Fall and Spring. This currently allows fellows to demonstrate competency in patient care and medical knowledge.

**Review of case or procedure logs and checklists:** Review of the bone marrow differential log, the bone marrow procedure log, and the flow cytometry triage log allows the faculty and program director to evaluate competency in patient care and medical knowledge. In addition, systems based learning is assessed by management meeting attendance log and documented completion of lab management curriculum.

These logs and checklists should be uploaded in to MedHub by the fellow on a monthly basis and will be used by the program director during quarterly evaluations.

**In-house written quiz and examination:** A bone marrow differential quiz and mid-year in-house exam allows the faculty to evaluate patient care and medical knowledge.

- Dr. Chen or Dr. Kumar will administer a bone marrow differential quiz after the fellows 1st week on general hematology/morphology service.
- Dr. Fuda will administer a mid-year in-house exam. All faculty will be contributing to the content of this exam as it is expanding to cover multiple content areas that pertain to Hematology and Hematopathology (e.g. laboratory hematology, morphology, flow cytometry, cytogenetics, coagulation, cytogenetic and molecular techniques)

**Project Assessment:** The fellow is required to complete a quality improvement project by April 1st during their fellowship. A faculty member will supervise the project (see separate tab for Project Report Forms). Supervising faculty will evaluate the fellow’s competency in four Core Competencies: Problem Based Learning, Interpersonal and Communication Skills, Professionalism and Systems Based Practice.
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<tr>
<th>General Competencies</th>
<th>Evaluation Tools Used or In Development by the Program</th>
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<td><strong>Patient Care</strong></td>
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<td><strong>Medical Knowledge</strong></td>
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<td><strong>Interpersonal &amp; Communication Skills</strong></td>
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<td><strong>Professionalism</strong></td>
<td>Direct Observation</td>
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<td><strong>Practice Based Learning</strong></td>
<td>Direct Observation</td>
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<tr>
<td><strong>Systems Based Learning</strong></td>
<td>Direct Observation</td>
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Morphology 1 Rotation

Description
Fellows are considered to be the “point persons” in charge of the morphology service during this rotation (generally completed in two 2-month blocks); they should take ownership of the service work and be intimately involved with resident/student education and oversight. The fellow will interpret slides, order ancillary testing (immunohistochemistry, cytogenetic FISH studies, and molecular testing) and generate final written reports for outside bone marrow, lymph node and solid hematolymphoid tissue specimens and for inside tissue cases. For in-house cases, the fellow will supervise and teach residents on the service. The fellows will present at conferences during this rotation and will provide oversight for resident presentations. The fellows should also participate in the interpretation of testing for variant hemoglobins during weekly sign-out sessions at Children’s Medical Center. The fellow has a separate 1-month coagulation rotation, but is strongly encouraged to attend the weekly coagulation conference and any ad-hoc coagulation lectures by Transfusion Medicine faculty during the Morphology rotations.

Important Notes

Consults:
- Make sure you preview and organize the cases for a smooth sign-out, usually at 8:30 a.m. each morning.
- Present your own interpretations and plans.
- Most importantly, keep any referring physician in the loop at all times: call them back right after review with faculty, let them know the plan, and let them know the final diagnosis when it is ready and well before the report gets to them.

Routine in-house cases, resident supervision and teaching
- BE AWARE OF “POLICIES FOR TAT AND COMMUNICATION ON PARKLAND CASES” (see separate document under Tab 9)
- Attend initial orientation with rotation director, Dr. Kirthi Kumar, M.D., Ph.D. and familiarize yourself with the resident’s responsibilities.
- Process specimens with all tests in mind (flow, cytogenetics, and molecular).
- Oversee the assignment of cases and preview cases with the residents during the 1st half of the 1st month (they have 2 month rotation blocks); monitor their progress to see when residents can assume most of this responsibility.
  - In the absence of a fellow on Morphology 2a or 2b, fellow on Morphology 1 should provide resident oversight for bone marrow and tissue cases.
• Preview bone marrow cases at the end of the day during their 1st month (look for unexpected new acute leukemias, hemophagocytic lymphohistiocytosis, etc); delegate to residents when they are ready.
  o When there is a fellow on Morphology 2a or 2b, then fellow on Morphology 1 should focus on providing oversight for tissue cases.
  o See separate section “Practical Morphology Service Notes” for details about distribution of the bone marrow and tissue cases between residents and fellows. There are caps provided for guidance about the resident workload.

• See also separate section “Morphology Service Notes” for other practical details of service work.

Graded Responsibility
At the beginning of the Morphology 1 rotation, the fellow will function similar to a senior resident on the service. The fellow will receive cases for work-up in rotation along with residents. These work-ups will include performance of differential counts, gathering of appropriate clinical and laboratory data, communication with clinical services, and production of a written report.

As the fellow gains expertise, he or she will shift into a supervisory role for the rotating residents with the residents assuming primary responsibility for in-house cases. The fellow will review cases with residents to assure that appropriate supportive information is being accrued and appropriate ancillary tests are being ordered. The fellow will maintain responsibility for the outside consults, but should assume increasing independence in generating an accurate interpretation, ordering ancillary testing and producing an effective written report.

The fellow also serves in a supervisory position for residents when they present at conferences (Hematology/Hematopathology Rounds and CMC Leukemia/Lymphoma Conference).

Duties
The duties include, but are not limited to:

Laboratory Hematology
• Weekly attendance at HPLC signout at Children’s Medical Center (Drs. Luu and Timmons).
  o Every Friday at 11:00 a.m. in the Hematopathology sign-out room at CMC.
• Fellows should make every attempt to attend the weekly coagulation conference (Mondays, PHHS HG102, noon- 1 pm) during Morphology Rotations and attend ad-hoc lectures on Coagulation (Clements University Hospital, 4th floor) given by Dr. R. Sarode (see more details under separate section for the coagulation rotation).

Morphology
• Attendance at daily sign-out sessions.
  o Consult sign-out at 8:30 a.m. in the Hematopathology sign-out room in the BioCenter, EB3.234.
• Inside case sign-out occurs in the afternoon; times and locations vary according to the faculty on service. These sessions include review of adult bone marrow, lymph nodes, and other solid hematolymphoid tissue specimens.

• Supervision and teaching of residents on service.

• Assistance with grossing and triaging of diagnostic lymph node and other Hematopathology-related biopsies at Parkland and University Hospitals.
  o Physician/Pathology assistants will primarily be doing this.
  o You will occasionally be called or paged to provide oversight during the day and when on call after hours.

• Sign-out of in-house bone marrow, lymph node and solid hematolymphoid tissue specimens. This responsibility will be shared with residents on service.
  o Sign-out responsibility includes review of slides and result of ancillary testing (e.g. flow cytometry), review with faculty, ordering additional ancillary studies (e.g. immunohistochemistry, FISH, PCR), and preparation of the final report for faculty sign-out.
  o Specimens are reviewed with faculty during afternoon sign-out, unless a more urgent review is necessary.
  o As the fellow gains expertise, he or she will shift into a supervisory role for the rotating residents, who will take on the primary responsibility for in-house cases.
    ▪ See also the separate section “Practical Morphology Service Notes” for details about distribution of the bone marrow and tissue cases between residents and fellows. There are soft and hard caps provided for guidance about the resident workload.

• Management of the consult service (bone marrow, lymph node and other solid hematolymphoid tissue specimens).
  o Immediate review of new consults with initiation of appropriate procedures such as contacting the referring physician, ordering special studies, etc.
  o If the fellow deems the consult urgent, it should be reviewed with the attending on service at the earliest available time.
  o If non-urgent, cases are brought to the 8:00 a.m. consult sign-out session the day after it is received.
  o The fellow is responsible for dictation, review and correction of the final report prior to sign-out by the attending Hematopathologist.

• Attendance and presentation at departmental and inter-departmental conferences.

• Act as primary contact person for inquiries from clinical services regarding ongoing cases, including demonstration of pathologic findings at the multi-headed microscope.
Conferences and Presentations

- Fellow on “Morphology 1” service is responsible for presentations or oversight for residents for the following:
  - Hematology/Hematopathology Rounds – Every Wednesday morning at 7:30 a.m. in the NC8 conference room.
  - Other ad-hoc conference coverage.

- Other conferences, where you will be presenting according to a schedule, but not related to being on morphology service:
  - Hematopathology Fellows Conference – Occurs on the 3rd Thursday of odd months (starting in November) at 12:00 p.m in EB3.112, the BioCenter conference room.
    - Fellow’s will present to residents and faculty on a pre-assigned topic sent to them early in the academic year along with the conference schedule.
  - Hematopathology Journal Club – Occurs on the 2nd Thursday of each month (starting in September) at 12:00 p.m. in EB3.112, the BioCenter conference room.
    - Fellows and faculty present a journal article or several abstracts from pre-assigned journals.
  - Flow Cytometry Conference – Occurs every Wednesday at 1:00 p.m. in EB3.112, the BioCenter conference room.
  - Clinical Pathology Rounds – Occurs every Tuesday at 11:00 a.m. in HG.102.

Call Responsibility

The fellow on general hematology/morphology service will be the primary contact person during the daytime for lab staff regarding problem cases and situations.

The Hematopathology fellow on-call is also the first-line contact person for the on-call pathology resident with regard to after hours or weekend call related to hematology laboratory or Hematopathology. The Hematopathology fellows will alternate this weekend and after-hours “beeper call” among themselves throughout the year, according to a schedule included under the “Schedules and Conferences” section. A Hematopathology faculty pathologist is available at all times to back up the fellow.

Time-Off Requests for Morphology 1 Rotation

Coverage of the service by one of the fellows is expected during this rotation. If a fellow needs time-off during this rotation, then he or she should coordinate with the other fellows to ensure coverage.

MedHub Portfolio, including Log Sheets and Checklists

The log sheets and checklists described below can be done while on Morphology 1 rotation. Progress will be checked during the quarterly evaluations with the program director.
**Bone Marrow Differentials Log Sheet**
- Perform 3 bone marrow differentials during your first few days on the morphology service.
- Have the Hematopathology faculty on service that week sign-off on these differentials, verifying that they have been reviewed with you and they are acceptable.
- The log sheet is due during the 1st week on morphology service. Upload this into your MedHub portfolio.

**PHHS Gross Room Orientation**
- The checklist is due by the end of the first 2 weeks. Please upload this into your MedHub portfolio.

**Monthly morphology case log**
- After each month on Morphology Service, please upload this into your MedHub portfolio.

**Presentations/journal club**
- After each month on Morphology Service, please make an entry for all conferences/journal club presentations in your MedHub portfolio.
- For these entries, it would be helpful to upload the powerpoint presentations, when applicable, or any flyer for the presentations

**Assessment Methods**
On a daily basis faculty will verify every case for final sign-out and provide direct verbal or written feedback to the fellows. Patient care, medical knowledge, practice-based learning, interpersonal and communication skills, professionalism and systems-based practice are formally assessed by the teaching faculty, departmental staff, other healthcare professionals and the fellow’s own self-assessment throughout the year. The fellowship director discusses formal MedHub multisource assessments, progress with checklists or log sheets, performance on mid-year exam, and performance on the FISHE during quarterly reviews.

**Suggested Resources**

**Books**

- Williams. Hematology.

Teaching Sets
- ASCP CheckPath Surveys (see Hematopathology Administrative Assistant)
- Peripheral blood smear resident teaching set (find on shelf in sign-out room)
- Hematopathology Slide Study Set (see Dr. Kumar)
Morphology 2a & 2b Rotation

Description
Fellows will share adult bone marrow service with the residents during Morphology 2a & 2b. During Morphology 2a, the fellow will complete laboratory hematology training and participate in hematology slide reviews (peripheral blood films & body fluid slides) from UT hospitals and Parkland. During Morphology 2b, the fellow will cover 2-weeks of service for Children’s Medical Center. During Morphology 2 months, the fellows should also participate in the interpretation of testing for variant hemoglobin during weekly sign-out sessions at Children’s Medical Center. The fellow on these services is strongly encouraged to attend the weekly coagulation conference and any ad-hoc coagulation lectures by Transfusion Medicine faculty during the Morphology rotations.

Important Notes
- BE AWARE OF “POLICIES FOR TAT AND COMMUNICATION ON PARKLAND CASES” (see separate document under Tab 9)
- Process specimens with all tests in mind (flow, cytogenetics, and molecular).
- See also separate document Tab 7 “Practical Morphology Service Notes” for other practical details of service work.

Duties
The duties include, but are not limited to:

**Morphology 2a:**
- Adult bone marrow cases will be distributed between the residents and fellow.
  - The fellow will usually take 1-2 adult bone marrow cases per day, unless that leaves the resident primarily covering adult bone marrows with no new cases that day. If the residents reach their bone marrow cap, then the fellow will take overflow adult bone marrow cases.
    - The junior resident cap is 5 total bone marrow cases (adult or CMC) with a lower cap during his or her first 2-weeks (3 total bone marrow cases).
    - The senior resident cap is 6 total bone marrow cases
  - Fellows will also be assigned 3 weeks of “sign-out” service for peripheral smears and body fluids (“problem boxes”) during designated month on morphology 2a.
    - The fellow will attend and observe faculty do the sign-out (10 a.m.) for the first week.
    - The fellow will act as faculty during the 2nd week, but will turn in the paperwork to a faculty hematopathologist for review and final release.
    - The fellow will independently release the PHHS reports during the 3rd week, but still turn in the UT paperwork to a faculty hematopathologist for review and final release.
• Fellow will turn in PHHS paperwork to the hematopathology administrative assistant so that a list of patients can be provided to Darren Slider so that billing for this work will not occur.

• Attend the laboratory hematology laboratory orientation sessions at Parkland during Morphology 2a.
  o Try to coordinate this with the residents on service (i.e. those who are signing out peripheral blood smear and body fluid referrals).
  o These sessions include introduction to automated analyzers, QC and QM procedures, special hematology tests, bone marrow processing, and body fluid analysis.
  o Complete and upload checklist into MedHub for these activities under a separate tab.

• Present one continuing education conference for PHHS hematology (see separate conference schedule) technologists during Morphology 2a.

• Weekly attendance at HPLC signout at Children’s Medical Center (Drs. Luu and Timmons).
  o Every Friday at 11:00 a.m. in the Hematopathology sign-out room at CMC.

• Fellows should make every attempt to attend the weekly coagulation conference (Mondays, PHHS HG102, noon-1 pm) during Morphology Rotation and attend ad-hoc lectures on Coagulation (Clements University Hospital, 4th floor) given by Dr. R. Sarode (see more details under separate section for the coagulation rotation).

**Morphology 2b**

• Similar to Morphology 2a, adult bone marrow cases will be distributed between the residents and fellow.
  o The fellow will usually take 1-2 adult bone marrow cases per day, unless that leaves the resident primarily covering adult bone marrows with no new cases that day. If the residents reach their bone marrow cap, then the fellow will take overflow adult bone marrow cases.
    ▪ The junior resident cap is 5 total bone marrow cases (adult or CMC) with a lower cap during his or her first 2-weeks (3 total bone marrow cases).
    ▪ The senior resident cap is 6 total bone marrow cases

• Fellows will be assigned 2 weeks of CMC service during this rotation (pediatric bone marrow, CSF cytology sign-out for leukemia patients & slides referred for pathologist reviews from CMC hematology lab (i.e. peripheral smears and body fluids).

• Weekly attendance at HPLC signout at Children’s Medical Center (Drs. Luu and Timmons).
  o Every Friday at 11:00 a.m. in the Hematopathology sign-out room at CMC.

• Fellows should make every attempt to attend the weekly coagulation conference (Mondays, PHHS HG102, noon-1 pm) during Morphology Rotation and attend ad-hoc lectures on
Coagulation (Clements University Hospital, 4th floor) given by Dr. R. Sarode (see more details under separate section for the coagulation rotation).

**Time-Off Requests for Morphology 2 Rotations**

Fellows generally may take up to 2 days off. If a fellow would like more time off during these rotations, then he or she should discuss this in advance with both the fellowship program director and the director of the rotation.

**MedHub Portfolio, including Log Sheets and Checklists**

The log sheets and checklists described below can be done during Morphology 2 rotations. Progress will be checked during the quarterly evaluations with the program director.

**Bone Marrow Procedure Log & Sign-off**

- This is an **ACGME requirement**.
- Perform 10 bone marrow biopsy procedures by the end of the 1-year accredited fellowship. Get the 1st five done by Feb 1st.
- This is accomplished most efficiently by attending Hematology Oncology Clinic at Parkland Hospital (beginning at 9:00 a.m. on Thursdays); contact the hematology-oncology fellow to set this up.
- The day after the procedure, have the pathology attending that is signing out the case sign-off on the log sheet. When the log sheet is complete, upload this into your MedHub portfolio.
- **You must log these in to the ACGME website BEFORE the end of the 1-year accredited Hematopathology fellowship.**

**Bone Marrow Differentials Log Sheet**

- Perform 3 bone marrow differentials during your first few days on the morphology service.
- Have the Hematopathology faculty on service that week sign-off on these differentials, verifying that they have been reviewed with you and they are acceptable.
- The log sheet is due during the 1st week on morphology service. Upload this into your MedHub portfolio.

**Hematology Laboratory Checklist**

- During Morphology 2a, observe specific procedures at Parkland Hospital. Please arrange a mutually agreeable time with the hematology laboratory technicians. Dr. Kumar can assist you as needed.
- Please upload the Hematology Lab checklist into your MedHub portfolio.

**Monthly morphology case log**

- After each month on Morphology Service, please upload this into your MedHub portfolio.
Presentations/journal club

- After each month on Morphology Service, please make an entry for all conferences/journal club presentations in your MedHub portfolio.

- For these entries, it would be helpful to upload the powerpoint presentations, when applicable, or any flyer for the presentations.

Assessment Methods

On a daily basis faculty will verify every case for final sign-out and provide direct verbal or written feedback to the fellows. Patient care, medical knowledge, practice-based learning, interpersonal and communication skills, professionalism and systems-based practice are formally assessed by the teaching faculty, departmental staff, other healthcare professionals and the fellow's own self-assessment throughout the year. The fellowship director discusses formal MedHub multisource assessments, progress with checklists or log sheets, performance on mid-year exam, and performance on the FISHE during quarterly reviews.

Goals and Objectives

Hematology (Morphology 2a)

1. Understand the principles of operation of automated hematology analyzers. The fellow should be able to interpret the output of the CBC analysis, including indices, histograms, differentials, and system flags, and should be able to correlate these results with other clinical and laboratory data. He or she should be aware of possible sources of error and their corresponding methods of correction.

2. Understand the principles, indications, application, interpretation, and sources of error of a variety of special hematology tests, including reticulocyte counts, sedimentation rates, Kleihauer-Betke test for fetal hemoglobin, sickle cell screens, osmotic fragility, and manual counting procedures.

3. The fellow should understand basic principles of hemoglobin electrophoresis, including alkaline, acid, isoelectric focusing and HPLC techniques. He or she should be able to interpret the results and correlate these with the peripheral smear findings and other laboratory data in the diagnosis of common hemoglobinopathies and thalassemia disorders.

4. Be able to evaluate and trouble-shoot problem cases and situations identified by the laboratory staff or others and confer with the attending pathologist when necessary.

5. Understand principles of laboratory quality control and quality assurance.

6. Be familiar with issues of hematology laboratory management, including, but not limited to, personnel issues, budgeting, instrument evaluation and purchase, workflow, etc.

Peripheral Blood, Body Fluid and Bone Marrow (Morphology 2a - Adult; Morphology 2b - Adult & Pediatric)

1. Be able to evaluate and interpret peripheral blood and body fluid smears. This should include the ability to generate a differential diagnosis based on the morphologic findings and to suggest appropriate follow-up laboratory tests. The fellow should be able to identify cases in
which further consultation is indicated and be able to communicate effectively with the clinical
physician regarding the morphologic findings and their implications.

2. Understand the indications of a bone marrow evaluation.

3. Understand the basic procedures for bone marrow processing including the factors that may
compromise specimen adequacy and both the advantages and disadvantages of the various
specimen preparations.

4. Be able to interpret bone marrow aspirate smears, clot sections and core biopsy sections.
Understand the ways in which both hematopoietic and non-hematopoietic disorders alter bone
marrow morphology and be able to gather appropriate clinical and laboratory data and
generate differential diagnoses based on the morphologic findings and clinical history.

5. Be able to perform bone marrow and peripheral blood differential counts.

6. Be able to select and order special studies when indicated, eventually without the input of the
attending pathologist. Be able to utilize immunohistochemistry in an effective and cost efficient
manner. Understand the purpose, utility, and limitations of various tissue antigens in the
differentiation of hematolymphoid disorders. Be able to utilize FISH and PCR testing to support
the morphologic findings and diagnosis. Be able order and facilitate that this testing gets done
on the properly selected specimen (touch imprints and paraffin embedded tissue sections) and
assist to ensure that testing is performed on the optimal areas of the tissue.

7. Communicate preliminary results to clinicians, when appropriate, and eventually prior to
evaluation by the attending pathologist.

8. Effectively synthesize the morphologic evaluation, ancillary studies and other laboratory
results into a cohesive and concise written report that provides all necessary information for
the clinician to be able to effectively treat his or her patient.
Suggested Resources

Books

- Williams. Hematology.

Teaching Sets

- ASCP CheckPath Survey Review
- Bone Marrow Lab teaching file
- CMC Hematopathology teaching set
Flow Cytometry Rotation

Description
The diagnostic flow cytometry service relies heavily on the fellow taking primary responsibility for several areas.

In the first few weeks of service, fellows should focus on the following:

- Quickly learn to independently triage all cases; especially learn the decision-making process for paucicellular specimens. **Triaging will become primarily your responsibility.**
  - You must complete the flow cytometry **triage log sheet** during the 1st week of your first month; the “Flow Cytometry Triage Log” is included in the “Log sheets and Checklists” section.

- Learn cluster analysis using Cytopaint by going through teaching sets and live cases.

- In the third or fourth week, look through the **procedure checklist** (included in the “Log sheets and Checklists” section) so that you gain an understanding of lab procedures. Upload the completed checklist into your MedHub portfolio and turn it in to Dr. Chen by the end of your 2nd month of flow cytometry.

Important Notes

- **Morning Morphology/Consult Sign-out:** You are expected to attend this each morning.

- **Flow Cytometry Hours:**
  - You are required to spend a total of at least 8 hours performing flow cytometry related activities per day. Any afternoon fellowship related conferences are included in these 8 hours; however, time spent during a lunch break is not included unless it is a lunch conference.
  - You must begin your 8 hour period by 11:00 am but may start earlier.
  - You must finish any case that you have started prior to leaving even if 8 hours has elapsed

- **Flow lab folders:** The first thing to do in the morning is to check the following folders for cases that need addressed:
  - **Stat Case folder**
    - Stat cases should be analyzed immediately and verbally reported to the client. All morning stat cases must be reported by 12pm.
  - **Drs. Review folder**
• Cases in the Drs. Review folder should be quickly reviewed to ensure nothing that needs immediate attention (e.g., new acute leukemia, large cell/higher lymphoma).
  
  ○ Process and Hold folder
    • Cases in the Process and Hold folder should be addressed appropriately. If enough time has elapsed that it seems reasonable to contact the client, the fellow should do so to determine whether or not to run or cancel the case.

1. **Flow Conference:** We have a flow conference at 1:00 p.m. on every Wednesday. The flow cytometry director will prepare and present the flow cytometry conference during the first 6 months of the academic year. The fellows will prepare and present the flow cytometry conference during the 6 months of the academic year with assistance of the flow director as needed.

   ○ Inform the residents on the flow and hemopath services what the topic for the next week will be so that they can familiarize themselves with the material ahead of time.
   
   ○ Select recent cases and prepare a PowerPoint presentation with the morphology and flow plots (picture pages). Have the printed report available with you.
   
   ○ Also check and know cytogenetic results for discussion in pertinent cases.
   
   ○ Please select the cases and have the PPT ready by Friday afternoon.

- **Resident Training:** Get involved every month when there are residents on service (refer to “resident rotation responsibilities” at the end of this section).

- **CP rounds presentations:** Contact Dr. Fuda at least 2 weeks prior to any scheduled presentation.

**Graded Responsibility**
Progressive autonomy and responsibility will be granted as the fellow gains expertise. Initially, essentially all aspects of the diagnostic process will require close supervision, including triage, data analysis, and reporting. However, by the end of the flow cytometry rotation, the trainee should be able to produce reports independently and with only a final review of the finished product by the supervising staff.

**Duties**
The fellow will serve as the “point-person” for the flow cytometry laboratory. This includes, but is not limited to:

- Triage of new cases, with selection of appropriate antibody panels.
- Procurement of appropriate clinical information from a source pathologist or clinician.
- Initial analysis of raw data or “painting.”
- Interpretation of data, with ordering of any additional antibodies required for completion of the flow work-up.
• Morphologic analysis of available material (e.g., smears, cytospins, touch imprints, and frozen sections) with generation of a morphologic description.
• Photography of appropriate abnormal cells.
• Production of final flow cytometry report.
• Communication of results to referring pathologists or clinicians.
• Supervision and teaching of residents rotating on service.
• Observation of various lab benches and QC procedures.
• Involvement in technical trouble-shooting.
• Attendance at the daily 8:00 a.m. consults sign-out session.
• The fellow on the flow cytometry rotation may participate in a quality assurance project in the laboratory during 1 of the 2 flow cytometry rotations. The fellow will meet with the flow cytometry director every Friday while on rotation to discuss progress on the project.

Goals and Objectives
• Understand the principles of operation for flow cytometers. The fellow should be aware of possible sources of errors and the corresponding methods of correction.
• Be able to identify normal and abnormal cellular populations in flow analysis.
• Understand issues of quality control and quality assurance as applied to the flow cytometry lab.
• Be able to effectively integrate morphologic and phenotypic findings into a coherent and useful report.
• Effectively communicate with clinical and pathologist colleagues regarding appropriate test utilization, limitations of techniques, and final interpretations.

Conferences
The weekly flow cytometry conference is on Wednesdays at 12:30 p.m. in EB3.110.

The flow cytometry director will prepare and present the flow cytometry conference during the first 6 months of the academic year. The fellows will prepare and present the flow cytometry conference during the second 6 months of the academic year.

The fellow of flow cytometry service is also expected to present at the Bone Marrow Transplant Case Conference (Thursdays at 7:30 – 9:00 a.m.). See more details under Tab 12 “Conferences.”

Attendance is also expected at the following conferences: Children’s Medical Center Hemoglobinopathy service, Hematopathology Journal Club, Hematopathology Fellows Conference, Hematology Oncology/Hematopathology Rounds.
**Assessment Methods**

Faculty will verify every case for final sign-out and provide direct verbal or written feedback for fellows daily. The fellow on the flow cytometry rotation will participate in reviewing the written resident flow cytometry test with the resident at the end of each flow cytometry rotation when a resident is on service. Patient care, medical knowledge, practice-based learning, interpersonal and communication skills, professionalism and systems-based practice are formally assessed by the teaching faculty, departmental staff, other healthcare professional and the fellow’s own self-assessment throughout the year. The fellowship director discusses formal MedHub multisource assessments, progress with checklists or log sheets, performance on in-house quizzes and exams, and performance on the FISHE during quarterly reviews.

**Call Responsibility**

The fellow on flow cytometry is *not* responsible for analyzing cases for after hours or weekend flow cytometry-related calls. However, they may get contacted/paged while on-call for Hematopathology for cases that need STAT flow cytometry. In these cases, they may be involved in paging the on-call technologist (214-745-0261) for Flow Cytometry and the on-call hematopathologist.

During the first month of the first rotation and the first 2 weeks of the second rotation, the attending pathologist will be first on call contact for night triage samples. After these time intervals, the fellow will be first on call contact for night triage samples.
Time-Off Requests for Flow Cytometry Rotation

During a 1-month flow cytometry rotation, a fellow may generally take up to 2 days off; however, finding another fellow to help with some coverage during this absence is preferred. If more than 2 days off is requested or needed, fellows should discuss the request with the program director and are responsible to coordinate with each other to ensure coverage for flow cytometry.

Suggested Resources

Books


Teaching Sets

Flow cytometry case files containing list-mode data are available that can be analyzed by trainees. These reside in the “DiagnosticFlowLab” Folder, under “Resident-Fellow” subfolder:

- **Orientation Cases:** Trainees can go through analysis of normal cases with instructions.
- **Challenging Cases:** Trainees can go through a set of interesting cases and compare their analysis/interpretation with the final reports.

**International Clinical Cytometry Society (ICCS) Membership**

- The fee for this membership is $75 per year.
- Fellows are strongly encouraged to join this society, as it is one of the best resources for flow cytometry related topics.
- There are numerous educational presentations and activities on the website as well as a quarterly news letter.

Flow Cytometry- Resident Rotation Responsibilities

Supervision and teaching of residents rotating on service is a major responsibility of the fellow. The fellow should be aware of the following expectations for the residents:

**First Week**

- Get overview of flow lab operation from Dr. Fuda or Ms. Karen Peart.
• Participate in the “triage” of all cases with the fellow or attending faculty.
  o Understand the approach of choosing panels.
  o Understand the approach for choosing limited panels.
• Learn the analysis of each panel through painting of negative cases (under Resident folder).
  o Follow instruction for painting and compare your results with printouts.
• Watch the fellow or attending faculty analyze live cases.
  o Appreciate the deviation from standard instructions, as there are many ways to achieve one goal.
• “Ghost paint” 1-2 live cases in parallel with the attending faculty and compare results.
• Fill out 4-5 negative case reports. This way, you will understand the best tubes for the enumeration of standard populations in each panel.

**Second Week**
• Continue to ghost paint and fill negative reports until comfortable.
• Understand the write-up of positive cases.
• Start painting live cases (positive or negative); try at least 1 case/day.
• Start rotating through the laboratory benches to observe different procedures.
  o These are outlined in the checklist.
• Go over IDW and SCQ cases with attending.

**Third and Fourth Weeks**
• Complete the observation of all checklist items.
• Continue to take primary responsibility for at least 1-2 cases/day.
  o Your goal is to be the primary dictator of at least 15-20 cases during your rotation.

**All Weeks**
• Contact Dr. Fuda at least 2 weeks prior to CP round presentation for case work-up.
• Attend all mandatory conferences.
  o You will be treated as the senior person in the flow conferences.
  o Know thy flow! 😊
• Ask questions and try to make this as productive of a learning experience as possible.
Cytogenetics & Molecular Diagnostic Lab Rotation

Description for Cytogenetics
The Hematopathology fellow will augment their understanding of the role of classical and molecular FISH cytogenetic testing specifically related to Hematopathology cases during this rotation. Prior to rotation, fellows must set up an appointment to meet with Dr. Prasad Koduru or his designee for orientation on their first day of the rotation. Hematopathology fellows will spend one month on the Cytogenetics rotation during the 1-year accredited Hematopathology fellowship. Fellows should plan to spend a minimum of 4 hours each day in the Cytogenetics laboratory.

The fellow should be aware that this rotation may involve working on a developmental or other Hematopathology–related project that can be completed during their rotation and contributes to their education experience. Write-up and submission of a case report for publication is encouraged.

Rotation Schedule for Cytogenetics

A. Week 1

a. Orientation to the laboratory’s various sections and their managers
b. Meeting with the director
c. Cytogenetics Pre-test
d. Introduction to Clinical Cytogenetics – short presentation
e. Participation in specimen quality checks and observing specimen processing in the lab and participation in intake
f. Cytogenetic ISCN nomenclature
g. If not previously done as a resident, the following activities are recommended:
   i. Setting up left over bone marrow and peripheral blood specimens
   ii. Chromosome analysis on metaphases – prints and karyotyping

B. Week 2

a. Chromosome analysis - karyotyping continued, including simple structural abnormalities
b. Slide preparation, banding and microscopy
c. Reviewing karyotypes with senior staff and preparation of reports
d. Introduction to Cancer Cytogenetics – short presentation.
e. Study questions to review conventional and molecular cytogenetics of AML, MDS, ALL plasma cell myeloma, CLL and Non-Hodgkin lymphomas.
f. Selection of a topic for rotation end presentation (i.e. review of a current topic and literature related to Cytogenetics and Hematopathology

g.

C. Week 3

a. Microscopy
b. FISH – processing and microscopy
c. Introduction to FISH – short presentation

D. Week 4

a. FISH – PET (Paraffin-Embedded Tissue) and others
b. Complete any pending work
c. Cytogenetics Post-test
d. Presentation
   i. This should be a review of a current topic and literature related to Cytogenetics and Hematopathology
   ii. Let the Hematopathology administrative assistant know date and time so that she can send out invitation to all Hematopathology faculty and trainees

**Duties for Cytogenetics**

1. The fellow will review all current cases related to Hematopathology and Hematopathology-associated specimens (bone marrow, lymph node and others) to formulate their own interpretation prior to reviewing the cases with the teaching faculty.

2. The fellow will assist with obtaining additional clinical and laboratory information to clarify what is the appropriate cytogenetic test to perform for Hematopathology-related cases and to assist with accurate interpretation of a cytogenetic result.

3. The fellow will assist with Hematopathology-related cases to ensure that appropriate areas are selected for FISH-PET testing.

4. The fellow will give a presentation during the 4th week of the rotation (review of a current topic and literature related to Cytogenetics and Hematopathology).

5. The fellow may be asked to work on a developmental or other Hematopathology-related project that can be completed during their rotation and contributes to their education experience.
Goals and Objectives for Cytogenetics

1. Become proficient with the appropriate indications and specimen requirements for cytogenetic evaluation of hematologic disorders.

2. Demonstrate appropriate interaction with Cytogenetics faculty and staff, clinicians, hospital staff, and other UTSW faculty, demonstrating an effective exchange of information so that appropriate cytogenetic tests are performed and interpretation of cytogenetic results are accurate.

3. Understand specimen processing and evaluation of stimulated peripheral bloods, bone marrow aspirates and leukemic bloods, and lymph node tissue specimens.

4. Appreciate the process of performing a G-banded karyotype.

5. Understand all aspects of the fluorescence in situ hybridization (FISH) procedure; including probe and slide preparation, hybridization and detection procedures, fluorescence microscopy and computer analysis.

6. Be familiar with scoring patient specimens evaluated by fluorescence in situ hybridization (FISH).

7. Develop the ability to discuss the conventional and molecular cytogenetic findings in the context of the clinical presentation of patients.

Graded Responsibility for Cytogenetics

As the rotation progresses, the fellow should demonstrate increased proficiency in arriving at his or her own interpretation prior to discussing the case with the attending on service. The fellow should also show increased initiative and independence for assisting in obtaining additional clinical information when needed, clarifying requests for testing for Hematopathology-related cases, and ensuring that appropriate areas are indicated for FISH-PET testing.

Conference Responsibility for Cytogenetics

- Monthly Cytogenetics Laboratory Meeting – Every 3rd Wednesday of each month at 1:00 p.m.

- Hematopathology conference requirements are otherwise the same as on the Morphology Services, including attendance at the following:
  - Hematology Oncology/Hematopathology Rounds – Every Wednesday at 7:30 a.m.
  - Flow conference – Every Wednesday at 1:00 p.m.
  - Hematopathology Fellows/Residents Conference – Every 3rd Thursday of each month at 12:00 p.m.
  - Hematopathology Journal Club – Every 2nd Thursday of each month at 12:00 p.m.
Assessment Methods for Cytogenetics

Procedures are supervised and skills assessed by direct interaction and observation by the senior Cytogenetics technologists and the Cytogenetics faculty. Patient care, medical knowledge, practice-based learning, interpersonal and communication skills, professionalism and systems-based practice are assessed at weekly didactic teaching sessions and fellows' presentations at conferences by the senior cytogenetic technologists and Cytogenetics faculty. The Cytogenetics faculty will complete evaluations in MedHub. Dr. Prasad Koduru or his designee will meet with the fellow at the end of the rotation to discuss the evaluation of the fellow's competency.

Call Responsibility for Cytogenetics

The fellow is not responsible for taking call for the Cytogenetics service.

Time-Off Requests for Cytogenetics Rotation

Generally, a fellow may take up to 2 days off during a 1-month cytogenetics and molecular diagnostic lab rotation. If a fellow would like more time off during this rotation, then he or she should discuss this with both the fellowship program director and the director of the rotation.

Suggested Resources for Cytogenetics

- Teaching manual for pathology trainees.
- Internet resources:
  - Atlas of Genetics and Cytogenetics in Oncology and Haematology: http://atlasgeneticsoncology.org/

Books


Description for Molecular Diagnostics Lab

The Molecular Diagnostics rotation allows the fellows to become familiar with basic molecular testing used to support Hematopathology and other disciplines.

The Molecular Diagnostics rotation includes training in basic and advanced molecular biology techniques as applied to molecular pathology. The fellow will learn the theory and observe molecular diagnostic tests for one or more of the following:

- Hematopoietic Malignancies
- i.e., Immunoglobulin and T-cell receptor gene rearrangements; chromosomal translocations including \textit{BCL2/IGH}, \textit{BCL-1/IGH}, and \textit{BCR/ABL}; JAK2 V617F identification; tumor burden quantitation in CML

- **Infectious Diseases**
  - CMV, EBV, HHV-6, HHV-7, HHV-8, parvovirus, VZV, HPV, HCV

- **Solid Tumors**
  - i.e., EGFR, KRAS, BRAF, IDH1, IDH2, 1p19q testing
  - Next generation sequencing assay for 50 genes

- **Coagulation**
  - i.e., factor II, factor V, MTHFR

- **Bone Marrow Engraftment**

During this rotation, the resident will have regular interactions with the director, including problem-based teaching on various aspects of molecular diagnostics, signing out results, and investigating unusual test results in one or more of the above areas.

The fellow will become familiar with physician responsibility for correlating clinical history with laboratory requests to ensure proper clinical testing, review of test progress, interpretation and communication of preliminary results, writing a final report, and review of quality assurance and proficiency testing. The fellow is expected to attend the biweekly molecular diagnostic general lab meeting. The fellow should also be aware that this rotation might involve working on a developmental or other Hematopathology–related project that contributes to their education experience and can be completed during their rotation.
At the end of the rotation, the fellow will be able to describe the various target-based and signal-based amplification methods and list the pros and cons for each method. Additionally, the fellow will diagram the workflow of a molecular diagnostic laboratory, list the possible pitfalls of molecular diagnostic tests, and be exposed to assays using real-time PCR, fragment analysis, DNA sequencing, Sequenom mass spectrometry, next generation sequencing, and tumor burden quantitation.

**Duties for Molecular Diagnostics Lab rotation**
- Observe assays performed in the laboratory.
- Coordinate clinical and laboratory data and discussion of pertinent cases with the attending physician.
- Performance of at least one PCR-based assay.
- Read pertinent literature and discuss with faculty.
- Present at appropriate conferences during course of month, such as CP Rounds and Hematology Oncology/Hematopathology Rounds.
- Act as liaison between the Hematopathology and molecular pathology services.
- When available, assist in design and development of new assay or revisions of existing assays.

**Goals for Molecular Diagnostics Lab rotation**
- Describe the basic principles of the molecular biology techniques used in a molecular pathology laboratory.
- List the advantages and disadvantages of various molecular methods.
- Describe the utility of molecular diagnostics as an aid to diagnosis for specific hematologic disorders.
- Explain sources of error in the molecular pathology laboratory.
- Diagram the QC and QA process for the molecular pathology laboratory.

**Graded Responsibility for Molecular Diagnostics Lab rotation**
Towards the end of the rotation, the fellow should analyze cases and arrive at and independent interpretation prior to discussing the case with the attending.

**Conferences for Molecular Diagnostics Lab rotation**
Attendance is required at the bi-weekly Molecular Diagnostics general lab meeting.

Hematopathology conference requirements are otherwise the same for the fellow as when on Morphology services.
Assessment Methods for Molecular Diagnostics Lab rotation
Patient care, medical knowledge, practice-based learning, interpersonal and communication skills, professionalism and systems-based practice are assessed by the technologists and faculty in the molecular pathology laboratory during the fellow’s daily involvement, at weekly didactic teaching sessions and at the fellows’ presentations at conferences. Dr. Oliver and staff in the laboratory will complete an evaluation of the fellow in MedHub. Dr. Dwight Oliver will meet with the fellow at the end of the rotation to discuss the evaluation.

Call Responsibility for Molecular Diagnostics Lab rotation
The fellow is not required to take call for the molecular pathology service.

Time-Off Requests for Molecular Diagnostics Rotation
Generally, a fellow may take up to 2 days off during this 1-month rotation. If a fellow would like more time off during this rotation, then he or she should discuss this with both the fellowship program director and the director of the rotation.

Suggested Resources

Books
- ASCP Comprehensive Review

Journals
- Diagnostic Molecular Pathology.
- Journal of Molecular Diagnostics
- Pathology and Hematopathology journals (see General Hematology Section)

Electronic Resources
1. Powerpoint presentations on CD by directors.
2. The following links are recommended:
Hematopathology Fellowship

Coagulation Rotation

Description
Fellows in Hematopathology will spend a one-month rotation in Coagulation during the 1-year accredited Hematopathology fellowship. Prior to rotation, fellows should email Dr. R. Sarode to let them know the first day that they will be on rotation. On the first day of the rotation, attend the 9am morning rounds; Dr. Sarode will meet with you after rounds to discuss goal/objectives and rotation expectations.

The fellow, in conjunction with the senior pathology resident on the coagulation rotation, will evaluate the coagulation test results and draft interpretations based on the clinical history of each patient. Fellows are expected to provide support to the residents in obtaining medical histories. They will attend and contribute to rounds, coagulation sign out and conferences as outlined below.

Goals and Objectives
- Familiarize himself or herself with each of the Standard Operating Procedures (SOP’s) in the Special Coagulation Laboratory of Parkland Hospital and University Hospital. Particular emphasis shall be placed on understanding the principles of each of the various tests performed in the lab.
- Observe the various tests being performed on the laboratory analyzers within the Special Coagulation Laboratory, including PFA-100 and at least one platelet aggregometry.
- Develop familiarity with the interpretation of platelet aggregation studies and their role in the diagnosis of acquired and inherited platelet dysfunction disorders.
- Develop familiarity with interpreting coagulation profiles in liver disease, vitamin K-deficiency heparin effect, DIC, lupus anticoagulant, von Willebrand’s disease, hemophilia, blocking inhibitors, and hypercoagulable states.
- Understand the diagnosis and significance of Factor V Leiden, Prothrombin variant mutations and other inherited or acquired genetic risks for thrombosis.
- Understand the appropriate use and interpretation of coagulation tests; understand the underlying coagulation mechanisms evaluated by various tests.
- The fellow will develop familiarity with principles of thromboelastometry and will assist in real-time interpretation of tracings when consulted by clinicians.
- Be familiar with the various testing methods used in coagulation, i.e., clotting endpoint, chromogenic assays, ELISA and molecular assays.
Rounds and Conferences

The fellow will be expected to attend and participate in the following conferences:

- Coagulation Conference (weekly) – Mondays, PHHS HG.102, noon-1 pm
- Transfusion Medicine/Coagulation Attending Lectures – Daily/Ad hoc –
  - 4th floor Clements University Hospital
  - Usually at 3 pm, but time is subject to change
  - Establish a relationship with the Transfusion Medicine fellow (2015-2016: Amina Usami; pager 214-786-8512) who can page or text all Hematopathology fellows throughout the year to notify them about ad-hoc lectures specific for Coagulation and related testing
- Teaching sessions by Hematology/Hemostasis Lab manager (individual special coagulation tests) – Mohammed “Mansoor” Ahmed, MT
- Coagulation Sign-out – Daily
- Transfusion Medicine/Coagulation Journal Club (2nd Thurs. each month)

Assessment Methods

Transfusion medicine faculty and staff assess the patient care, medical knowledge, practice-based learning, interpersonal skills, communication skills, professionalism and systems-based practice of transfusion medicine fellows during morning rounds, afternoon sign-out, one-on-one interactions, and conferences. The faculty provides the fellow with daily feedback on written consultations. Dr. Sarode and staff in the laboratory will complete evaluations of the fellow in MedHub. Dr. Sarode will meet with the fellow at the end of the rotation to discuss the evaluation.

Time-Off Requests for Coagulation Rotation

Generally, a fellow may take up to 2 days off during this 1-month rotation. If a fellow would like more time off during this rotation, then he or she should discuss this with both the fellowship program director and the director of the rotation.
Management Training

Description
Training in laboratory management and decision-making encompasses all aspects of Hematopathology practice. Training in this area is not limited to a distinct rotation. Fellows are considered integral to the services and have the opportunity to participate in discussion of matters related to management of laboratories that are overseen by the division of Hematopathology.

In addition to attendance at management meetings, fellows go through an organized lab management curriculum at Children’s Medical Center.

Faculty may also ask the fellows to actively assist in acute or longer-term management issues.

Expectations
- Complete the lab management curriculum at Children’s Medical Center.
  - Please refer to the schedule included at the end of this section.
  - Attendance can be coordinated through Dr. Luu or Ms. Estella Castillo.
  - Fellows should be able to complete the curriculum in 1 or 2 weeks (totaling about 9 hours time).
- Assist in acute or longer-term management activities as requested by hematopathology faculty.
- Attend at least 4 management meetings during your 1-year accredited hematopathology fellowship.
  - Please use the log-sheet included in the “Log-sheets and Checklists” section and have faculty sign-off on your attendance.

List of Available Management Meetings
1. Parkland Hematology Lab Management Meeting (Dr. Kumar)
   a. Occurs on the second and fourth Tuesday of each month.
2. Monthly Flow Cytometry Laboratory Meeting (Dr. Fuda)
   a. Topics discussed include Q&A and general lab concerns.
   b. Short lecture to techs given by medical director, fellow, or resident.
3. Flow Cytometry Laboratory Section Meeting (Dr. Fuda)
   a. Topics discussed include Q&A, information resources, and new validations.
4. UTSWMC Hematology Section QC Review (Dr. Chen)
   a. Dates and Times vary.
   b. Site-specific laboratories (Zale, St. Paul, or Seay lab)
5. UTSWMC Hematology Section Management Meeting (Dr. Chen)
   a. Monthly meeting
6. CMC Lab Quality Management Meeting (Dr. Luu)
   a. 3rd Tuesday of each month – 9:30-11:00 a.m.
   b. CMC Path conference room C1403
7. CMC AP/CP Faculty Meeting (Dr. Luu)
   a. 1st Monday of each month – 3:00-5:00 p.m.
   b. CMC Path conference room C1403
8. CMC Lab Monthly Management Meeting (Dr. Luu)
   a. 2nd Wednesday of each month – 12:00-1:00 p.m.
   b. CMC Path conference room C1403
9. CMC Lab Operations Meeting (Dr. Luu)
   a. Weekly on Wednesday, 9:00-10:00 a.m.
   b. CMC Path conference room C1403

Goals

- Understand the basic principles of laboratory management and decision-making.
- Be able to manage hematology-associated laboratories and to direct laboratory technologists and other personnel in order to provide cost-effective and accurate diagnostic or laboratory results.
- Demonstrate the ability to evaluate changes in testing offered, specimen volumes and personnel staffing that may affect the organization and workflow of the laboratory.
- Demonstrate an awareness of the larger context and system of health care and the ability to call effectively on other resources in the system to provide optimal patient service.
- Be familiar with issues related to instrument evaluation and purchase.

Suggested Resources

Books

<table>
<thead>
<tr>
<th>Presentor</th>
<th>Topic</th>
<th>Agenda</th>
<th>Credit Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estella Castillo, Admin Asst (C1419, Lab Admin Mtg Rm 1st Fl)</td>
<td>• Toast Video</td>
<td>• Toast Video of Lean Culture/Lean Process</td>
<td>0.5</td>
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<tr>
<td>Patti Jones, PhD Director of Chemistry (C1420, Lab Admin Ofc 1st Fl)</td>
<td>• Understanding the Lean Philosophy</td>
<td>• Lean Culture/Lean Processes</td>
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<tr>
<td>Jennifer Roberts, Manager, POCT &amp; Quality (C1423, Lab Admin Ofc 1st Fl)</td>
<td>• Lab Safety Program • Inventory and Kanban • Proficiency Testing and Quality Control; Process for SOPs • Cap Requirements and Inspection Process • LIS processes for CAP</td>
<td>• How to determine risk management • CAP/CLIA/JACHO/AABB/HIPAA • Proficiency Testing • How they are utilized, developed, authorized and viewed • CAP Regulations and preparation for inspection</td>
<td>1.00</td>
</tr>
<tr>
<td>John Burns, Supervisor, Hematology/3rd Shift (C1440, 1st Fl Lab)</td>
<td>• Competency Assessments</td>
<td>• Competency assessment process</td>
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</tr>
<tr>
<td>Jonathan Beal, Manager, Core Lab (C1406, Lab Admin Ofc 1st Fl)</td>
<td>• Specimen Collection</td>
<td>• Collection process</td>
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<tr>
<td>Brian Stewart, Director, Business Operations (C1416, Lab Admin Ofc 1st Fl)</td>
<td>• Budget, Cost Accounting and Billing • Daily processes in LIS • Rotation Wrap-Up</td>
<td>• Business plan • CPT Codes • Feedback on rotation</td>
<td>1.00</td>
</tr>
<tr>
<td>Cynthia Fountain, Supervisor, Phlebotomy (CMC Pavilion, 1st Floor)</td>
<td>• Tube Processing and Processes in Phlebotomy</td>
<td>• Processes in the out patient lab</td>
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### ADDITIONAL MEETINGS:

#### Daily Meetings

<table>
<thead>
<tr>
<th>Time</th>
<th>Content</th>
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<tbody>
<tr>
<td>Daily Leadership Huddle (15 min)</td>
<td>Lab Director, Managers and Pathologists (In front of large white board in the hallway)</td>
</tr>
<tr>
<td>Monday</td>
<td>Quality - Amended Reports, Failed Assays</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Safety - Lab Safety, Patient Harm, Near Miss</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Cost - Overtime, Cost Savings</td>
</tr>
<tr>
<td>Thursday</td>
<td>Growth - New Assays, Validations, Outreach</td>
</tr>
<tr>
<td>Friday</td>
<td>Budget - Productivity, Expenses, Volumes</td>
</tr>
<tr>
<td>Daily</td>
<td>Staffing, IS, Facilities, Equipment</td>
</tr>
</tbody>
</table>

- Inform management of daily activities within the different sections in the lab
- **Attend at least three 15 minute sessions, providing residents schedule permits it**

#### Weekly Meetings

<table>
<thead>
<tr>
<th>Time</th>
<th>Content</th>
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<tbody>
<tr>
<td>Lab Operations Meeting</td>
<td>Every Wednesday</td>
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<td>9:30-11:00am</td>
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#### Monthly Meetings

<table>
<thead>
<tr>
<th>Time</th>
<th>Content</th>
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<tbody>
<tr>
<td>Lab Quality Assessment Committee Meeting</td>
<td>3rd Tuesday</td>
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<td>9:30-11:00am</td>
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#### Total Hours

- 3.75