**Hematopathology Rotations Goals and Objectives**

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The goal of the **First Hematopathology Rotation** is for the resident to move from being a

**Novice**  (A novice knows little about the subject, and rigidly adheres to rules with little situational perception. He/she does not feel responsible for outcomes. )

To

**Advanced Beginner** (The advanced beginner is still dependent on rules, but can adapt rules to changing circumstances. However, all attributes of a situation tend to be given equal importance, and there is still little feeling of personal responsibility for outcomes.)

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| **First Rotation Goals** | **First GA Rotation Objectives** |
| **Medical Knowledge**Acquires knowledge of the pathophysiology and laboratory manifestations of common conditions; knows where to access information. | The resident will acquire knowledge about :* The differential diagnoses based on broad patterns of blood, bone marrow, and lymph node morphology, focusing more on bone marrow than lymph nodes on the first rotation.
* Learn the principles of immunophenotypic correlations
* Understand the WHO classification of hematopoietic neoplasms, focusing on broad categories of hematologic disease
* Understand the workup of anemia, including recommendations for ancillary tests
* Understand the ancillary testing performed in the hematology laboratory, including G6PD, Heinz body test, Inulin test, LAP, reticulocyte count, sickle prep, sedimentation rate
* Understand the principles of automated hematology analyzers used in the laboratory
* Interpret hematologic profile, including indices, histograms, scatter plots, and differentials
* Normal hematologic cells types at all stages of maturation, and normal bone marrow morphology
* The principles and applications of ancillary studies used in the Hematopathology laboratory, including cytogenetics, immunohistochemistry, cytochemistry, molecular diagnostics, and flow cytometry

The resident will learn to access the standard textbooks available in the signout room, and will review the relevant online learning modules. |
| **Patient Care**Is able to perform procedures necessary to generate laboratory information, gather clinical information needed to establish a diagnosis, and make observations relevant to the clinical situation. | With appropriate supervision (see below), the resident will * Become familiar with the workup of bone marrow and lymph node biopsies, including synthesis of peripheral blood, bone marrow aspirate (including differential counts) and bone marrow biopsy findings. This will include documentation of a requisite number of blood and bone marrow differential counts.
* Be able to interpret peripheral blood smears sent for pathologist review
* Be able to generate a final Hematopathology report for review with the faculty that includes diagnosis, answers to clinical questions, and results of studies.
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| **Practice-based Learning and Improvement**Uses feedback and evaluations to generate or modify learning plan and improve skills. | The resident:* Uses feedback from preliminary diagnostic errors to improve diagnostic accuracy
* Asks questions and seeks guidance in building medical knowledge and improving patient care skills
* Accesses learning sources (textbooks, medical literature, online resources) to fill gaps in medical knowledge that come to light during case discussions
* Develops increasingly efficient case management
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| **Interpersonal and Communication Skills**Establishes collegial interactive and communication skills in dealing with others; structures reports that are clear, succinct, and follow templates; listens to and fulfills requests from other providers. | The resident will* Interact in a collegial way with technical staff, administrative staff, and transcriptionists, with goal of providing optimal patient care
* Volunteer his/her opinion of cases to faculty, using correct terminology
* Dictate diagnoses that use accepted terminology, are easy to understand, and that relay the information important to patient management
* With direction, notify treating physicians of unexpected diagnoses
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| **Professionalism**Is honest, compassionate, and respectful of others; complies with laws and regulations; fulfills patient care and educational responsibilities faithfully. | The resident:* Is present and ready for signout at the agreed time
* Admits errors or omissions and takes steps to correct them
* Protects patient privacy
* Is sensitive to issues of race, gender, ethnic background, religion, sexual orientation and other social factors in dealing with patient care and in interactions with other providers and other learners
* Treats colleagues at all levels with respect
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| **Systems-based Practice**Identifies issues related to error, cost, and the need for interdisciplinary collaboration in the delivery of health care. Conducts handoff at the conclusion of rotation with care and thoroughness. | The resident:* Understands hematology laboratory QA/QC principles
* Is vigilant regarding possible specimen, slide, or identification errors and takes steps to investigate and resolve potential errors
* Accurately assigns billing codes and quality codes to cases, and understands the role of these codes
* Discusses the cost-effectiveness in the selection of ancillary studies.
* Understands the value of intradepartmental consultation and collaboration with other departments and specialties in delivering optimal patient care.
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The goal of the **Second and Third Hematopathology Rotations** is for the resident to move from being an

**Advanced Beginner** (The advanced beginner is still dependent on rules, but can adapt rules to changing circumstances. However, all attributes of a situation tend to be given equal importance, and there is still little feeling of personal responsibility for outcomes.)

To

**Competent** (The competent learner grasps the relevant facts, can sort information by relevance, can bring his/her own judgment to each case, and solve problems. Guidelines are adapted to unexpected events. He/she feels accountable for outcomes because of increasing decision-making.)

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| **Second and Third Rotation Goals** | **Second and Third GA Rotation Objectives** |
| **Medical Knowledge**Acquires knowledge of less commonly-encountered conditions and laboratory techniques; critically evaluates knowledge sources and uses evidence-based approach to acquire new knowledge. | The resident will acquire knowledge about:* Myeloproliferative disorders including cytogenetic, molecular, LAP correlation,
* WHO classification for myeloproliferative disorders
* Acute Leukemias including proper interpretation of molecular, immunophenotyping, cytogenetic and cytochemical studies.
* Myelodysplastic syndromes, including molecular and cytogenetic studies. Know FAb/WHO classification.
* Non Hodgkin’s lymphomas including the current classification and grading, how to diagnose and distinguish from reactive disorders and to be able to determine the appropriate ancillary test for diagnosis.
* Hodgkin’s lymphoma including proper diagnosis and classification, how to distinguish from NHL and the appropriate use of ancillary studies in the workup.
* Other miscellaneous hematopoeitic entities including mast cell disorders, plasma cell disorders, therapy induced disorders, disorders unique to immunodeficiency sates, and histiocytic/dendritic cell disorders, reactive (nonneoplastic) hematologic disorders.
* Flow cytometry techniques and interpretation for hematologic specimens
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| **Patient Care**Is able to perform procedures necessary to generate laboratory information, gather clinical information needed to establish a diagnosis, and make observations relevant to the clinical situation. Uses laboratory data and own observations to generate accurate diagnoses and differential diagnoses; suggests appropriate ancillary studies as needed; responds to requests for consultation. | With appropriate supervision (see below), the resident will * Obtain clinical history from the EMR when the provided information is needed to make accurate diagnosis
* Review prepared slides and dictate preliminary reports that are usually accurate, and need some editing by faculty.
* Suggest additional studies during with faculty, analyze results and anticipate need for further studies or consultation.
* Review flow cytometric results and formulate preliminary interpretations.
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| **Practice-based Learning and Improvement**Adapts practices based on literature review, case outcomes, peer and 360 reviews, and system demands; seeks and gives feedback to improve self and others. | The resident:* Continues to use feedback from preliminary diagnostic errors to improve diagnostic accuracy.
* Uses information accessed on past cases to more efficiently arrive at a diagnosis in subsequent cases.
* Uses feedback and questions from clinicians to refine approach to reporting cases.
* Is attentive to flow cytometry checklist (attached) in guiding his/her own learning.
* Accesses learning sources (textbooks, medical literature, online resources) to fill gaps in medical knowledge before coming to signout.
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| **Interpersonal and Communication Skills**Effectively communicates in a variety of settings, including during conferences, while providing consultations, and teaching peers.  | The resident will* Interact in a collegial way with treating physicians, other learners who request information or attend signout.
* Volunteer his/her opinion of cases to faculty, with explanations of rationale
* Dictate reports that are designed to answer both the articulated and anticipated clinical questions.
* Recognize cases that indicate the need to notify treating physicians, and suggest this need to faculty at signout.
* Prepares and presents cases at CP Case conference
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| **Professionalism**Manages patient care duties and interacts with other providers with compassion and respect for diversity; recognizes and responds to need for help from colleagues. | The resident:* Attends all required conferences
* Assures successful transfer of cases to next rotating resident
* Offers assistance to other members of the team as appropriate
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| **Systems-based Practice**Improves patient outcomes and promotes efficiency by making decisions based on best evidence of outcomes, and by involvement in quality initiatives. | The resident:* Is knowledgeable about and suggests the most efficient and effective ancillary studies in difficult cases.
* Gives feedback to laboratory about quality and timeliness of slides and case delivery
* Initiates intradepartmental consultations so as to improve case turnaround time.
* Calls attention to practices that may increase the risk of error.
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The goal of the **Final Hematopathology Rotation** is for the resident to move from being

**Competent** (The competent learner grasps the relevant facts, can sort information by relevance, can bring his/her own judgment to each case, and solve problems. Guidelines are adapted to unexpected events. He/she feels accountable for outcomes because of increasing decision-making.)

To

**Proficient** ((Characterised by the progress of the learner from step-by-step analysis and task performance to a holistic perception of the entirety of the situation. Uses pattern recognition arising from experience to identify problems. Perceives deviations from what is expected.  Learns from the experience of others.   Sense of responsibility grows with increasing decision-making. )

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| **Final Rotation Goals** | **Final GA Rotation Objectives** |
| **Medical Knowledge**Exercises judgment in application of evidence-based knowledge to patient and to patient population; assists junior residents and other learners in accessing sources of medical knowledge. | * The resident will acquire knowledge about unusual hematologic disorders and malignancies.
* The resident will independently bring new clinical and scientific evidence to the discussions at signout and apply it to challenging cases.
* The resident will serve as a resource to other learners (junior residents, medical students, clinical fellows).
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| **Patient Care**Recognizes clinical cases and circumstances that are rare or unique and selects appropriate additional studies; initiates consultant role in unusual cases; directs other providers and learners in challenging situations. | The resident will * Be able to ask sophisticated questions of clinicians about cases with complex or confusing microscopic findings.
* Proactively seek expert intradepartmental consultation on cases for which this is required.
* Give direction to other residents, technical staff, and pathology assistants regarding the handling of unusual cases.
* Serve as a resource for other learners regarding interpretation and diagnosis.
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| **Practice-based Learning and Improvement**Facilitates collaboration and teamwork to promote learning.  | The resident:* Work to complete learning expectations on general Hematopathology and flow cytometry checklists.
* Work with other learners, such as fellows, other residents, and medical students, to share tasks related to gathering knowledge
* Recognize gaps in others’ learning (fellow, residents, students, and faculty) and contribute to filling the gaps.
* Recognize circumstances in which the current state of clinical and scientific evidence is lacking.
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| **Interpersonal and Communication Skills**Demonstrates skill in dealing with conflicting opinions or perspectives; responds independently to questions from other providers, patients, and families; generates sophisticated reports that relay information about complex cases. | The resident will* Manage conflicting opinions or perspectives in such a way that optimal patient care is protected.
* Independently handle inquiries for clarification or additional information, and initiate tasks necessary to provide this.
* Generate reports that convey diagnostic information about both simple and complex cases effectively, needing little or no editing by faculty.
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| **Professionalism**Recognizes impairment in themselves and peers and takes steps to address this. Mentors others in use of inter-professional and multi-disciplinary collaboration; Is a role model to other learners regarding accountability to self and others. | The resident:* Can be viewed as a role model in understanding and managing the strengths and weaknesses of him/herself and others.
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| **Systems-based Practice**Identifies sources of error and inefficiency and initiates action to assess and fix them. | The resident:* Identifies processes that lead to inefficiencies and potential errors, and suggests improvements.
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**Plan for Training**

Residents will rotate through Hematopathology several times during a four-year AP/CP residency program, and will proceed through a set of assignments that will focus first on bone marrow and peripheral blood evaluation and interpretation, then move to lymph node morphologic interpretation and flow cytometry. Checklists have been developed to guide learning and are attached. In addition, the residents are expected to:

* Review available teaching sets (actual and virtual).
* Attended at least 5 (five) bone marrow procedures as an observer.
* Present at Hematology related Multidisciplinary conferences (Myeloma, Lymphoma)
* Present case presentations at HP Educational conference.
* Present tech in-service to hematology lab.
* Complete on-line competency exam.

Please see Hematopathology Attachments 1 and 2.

**Supervision**

The following activities are to be conducted with **Direct Supervision** (the supervising physician is physically present with the resident):

* Electronic verification of diagnoses, additional or amended diagnoses, and comments.
* Frozen sections (if called upon)
* Communications with other providers, during the first hematopathology rotation.

The following activities may be conducted with **Indirect Supervision** (direct supervision immediately available either within the hospital of by telephonic or electronic communication):

* Processing of specimens for hematologic workup
* Communications with other providers for those who have completed one GA rotation.

The following activities may be conducted with **Oversight** (the supervising physician is available to review with feedback after activity is completed):

* Dictation of preliminary diagnoses

Evaluation

* Electronic (MedHub) evaluation completed by faculty at the conclusion of each rotation
* 360 evaluation completed by fellows and technical staff semi-annually
* Resident Inservice Examination (annually)