**LEARNING OBJECTIVES: EL Laboratory Medicine Clinical Elective**

| **Overarching Goals of Curriculum** | **Elective objectives: By the end of the rotation, students will be expected to:**  | **Where/how taught***(Location or learning activity)* | **Taught by***(Attending, fellows, etc.)* | **How student’s achievement of objective is assessed***(Assessment method)* | **How feedback is given***(Feedback method)* | **Quantity target***(Target number of patients/ events during rotation)* |
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| **1, 2, 3, 4, 5, 6** | **1.Laboratory Manifestation of Diseases**. Know the laboratory manifestations of major diseases and how to interpret laboratory information. Know the most common lab findings for the following diseases: Virology: SARS CoV-2, CMV/EBV, HIV, C. difficile, syphilis Chemistry: Diabetes, hypothyroidism, drug overdoseHematology: Anemia, leukemia, lymphoma, coagulation abnormalitiesBlood Bank: Transfusion reactions, blood group alloimmunizationImmunology: Autoimmune diseases, common genetic disordersMicrobiology: Tuberculosis, community acquired pneumonia, sepsisMolecular: common genetic disorders | Clinical laboratories at YNHH and VA-CTSit at bench with knowledgeable teacherDidactic teaching conferences | Follow resident or fellow in each laboratory, including weekend call.  | Student will work up and present cases for discussion | Verbal feedback on presentations, and during discussions | Informally present 2-4 patients to residents, chief resident, fellows and/or faculty during the 2 week rotation |
| **1, 2, 3, 4, 5** | **2.Appropriate Usage and Interpretation of Laboratory Tests**: Know the indications for ordering common laboratory tests, for example * 1. Know the appropriate test to order for diseases above depending on the clinical context.
	2. Name at least 3 common mistakes that clinicians make in ordering laboratory tests
	3. Describe the first line therapy for each of these conditions
	4. Participate in test “sign out” if available
 | See above | See above | See above | See above |  |
| **1, 2, 3, 4, 5, 6, 7, 8** | **3. Laboratory Procedural Skills:** Students will have a choice of laboratory procedures to observe in each laboratory, including:Virology: NAAT, serology, Cytotoxin neutralizationBlood bank: blood typing, antibody screening, apheresis, cell therapiesImmunology: antinuclear antibody testing, immunofixation electrophoresis, flow cytometryToxicology; urine toxicology screeningMicrobiology: bacterial culture and sensitivity testing, 16s sequencingMolecular diagnostics: PCR, sequencingChemistry: serum chemistry panel, SPEPHematology: Blood smearsFor each procedure they choose:1. The student should know the key indications for the procedure.
2. They should know key aspects of quality assurance.
3. Know elements in interpretation
4. Understand pitfalls
 | In appropriate laboratory | Residents, fellows, attendings, laboratory staff | Discussion and observation. If students perform any test interpretations, they should get feedback  | Verbal | 1-3 selected procedures per lab depending on test complexity |
| **4** | 1. **Attitude:** Demonstrate professional responsibility in working as a team member with other members of the Laboratory medicine team.
	1. The student should exhibit honesty, accuracy and integrity in all interactions with staff, residents, attendings, fellows, and others.
 | All locations | All | Ongoing observation | Informal verbal, and by elective director at end of rotation | NA |
| **5, 6, 8** | 1. **Career/context**: Know the theoretical, technological, and clinical underpinnings of the specialty of Laboratory Medicine
	1. Know the training pathways for Laboratory medicine
	2. Know 3 aspects of career satisfaction in this specialty
	3. Know key roles that Laboratory Medicine plays in the health care system
 | As above, meet with residency director  | Interactive discussions with all.  | Ongoing | Meeting with elective director at end of rotation |  |