URINALYSIS/SEROLOGY
Urinalysis, body fluids, serologic tests

The urinalysis/serology rotation is assigned as a component of the chemical pathology rotations. Body fluids and manual peripheral blood smears are routinely signed out by the resident on the hematopathology service (4 months).

There is the urinalysis rotation at the Medical Mall with the wet urine sediment preparations of renal transplant patients and review of positive findings from the UMMC main laboratory. Approximately 20% of urines from the main clinical lab are microscopically examined, while 100% of the renal transplant urines are reviewed. The serology portion of the rotation is spent learning the techniques and theory of serologic lab tests (molecular infectious disease tests, autoimmune work-ups, etc.) The resident works with the technologists in the Special Chemistry Section of the main clinical laboratory in doing immunological procedures such as ELISA, immunodiffusion, immunofluorescent assays, agglutination, complement fixation, Western blots and antigen and antibody titers. The resident is also involved in doing DNA RNA assays such as polymerase chain reaction, RT-PCR, real time PCR and hybrid capture. The remainder of the time on serology is dedicated to refining the resident's ability to interpret microscopic examination of body fluids.

Training Objectives:

1. Quality Control
2. Preparation and interpretation of fluid smears
3. Understanding and interpreting all aspects of urinalysis

General competencies are taught using the following methods:

1. Direct observation of the interpretations
2. Review of Cases
3. Formal Lectures
4. Assigned reading
5. Management: Review of Performance Improvement and patient problem cases

Skill levels: During the one month, the resident is expected to require less assistance from staff as he/she progresses and learns to recognize different types of casts, crystals, and various cells in urine, and should be able to independently interpret body fluids in the majority of cases. All tests require faculty approval prior to sign-out.

Patient Care

1. Develop the skill of obtaining a complete medical history of the patients urinary, or body cavity fluid signs and symptoms, interpret those findings, and solicit additional historical information from the patient, patient's family or medical record when applicable.
2. Integrate the past personal and family history with medication use and select those additional urinary function tests best suited to reach a diagnosis is the shortest possible time.
3. Prioritize the patient’s situation, urgency, and need for corrective action in ordering the necessary laboratory tests, which should be made stat, and which can wait.
4. Discuss with the clinician the findings, their significance, and follow up testing.

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Medical Knowledge

1. Retain the fundamental information about each kind of urinary tract disorder, body fluid cavity analysis, and use this information to order any additional tests to explain the finding in terms of the mechanisms of the disease under consideration.
2. At the end of month conference explain the findings of a particular disease process and how this disease alters routine and specialized testing if any.
3. Participate in the monthly end of month CP and round table discussions of the urinary tract and body fluid cavities. Read the basic disease list in Henry. Other assigned reading for a particular disease or process.

Practice-Based Learning and Improvement

1. Participate in the monthly review of quality control of routine and specialized testing: examples:
   - Urine: Biochemical, Microscopic, formed element identification
   - Body Fluid: Cell types, infectious agents, tumors, polarized and phase light identifications
2. Automated and manual procedures for clinical microscopy: IRIS, clinitec, hemocytometer, polarized light, cytopsin
3. Apply the Meditech computer as well as the Internet in the analysis of laboratory data problems.
4. Develop a comprehensive understanding of the purpose and practical application of the CAP, JCAHO, FDA, and AABB inspection and accreditation standards.

Interpersonal and Communication Skills

1. Communicate with clinicians the essentials of the urine analysis and body fluid interpretation as related to the patient’s problem.
2. Successfully interact with the clinician and laboratory technologist concerning laboratory issues such synovial fluid uric acid crystals, unusual urine crystals and the observation of possible cancer cells in terms of what should be ordered next.
3. Present an organized and practical presentation in the CP conference as well as the end of month conference. Participate with student lectures and small group discussions.

Professionalism

1. Demonstrate the appropriate verbal skills in discussing laboratory issues with attending physicians, residents, and laboratory staff. It is unacceptable to have any incidents of inappropriate behavior at any time.
2. Total compliance with the UMC compliance program as well as HIPPA.
3. Mandatory attendance while on CP to all CP conferences unless excused by the Section Medical Director.
4. Perform the assigned tasks, see patients as well as the appropriate analysis of patient problems as required in an organized and efficient manner.

Systems-Based Practice
1. Develop knowledge of the cost of specific urinalysis and body fluid examinations, and the cost of additional testing. Use this information to achieve the most efficient means to reach patient management decision-making.

2. Define the benefits of automation in urinalysis testing, it's limits and when manual procedures are required

3. Assess the value of QA and PI in the performance of urine and body fluid tests. Define the role of the computer in these testing procedures.

Mode of Assessment

1. With satisfactorily completing the two week urinalysis rotation, the senior clinical laboratory scientist will provide a score of pass or fail based on their performance at the microscope with reviewing urinalysis.

2. Written exam with the ASCP in-service exam, and oral interpretations at the microscope

3. Direct observations: See check list

4. Participation in section meetings, morning report, and CP conferences

Check List: Urinalysis and Body Fluids:

Review procedure manuals  
Make a cytospin preparation  
Review study set of cytospin slides of body fluids  

Instrumentation:

Review operation of  
  Clinitec: 100,500, and interpret  
  Iris automated system  
  Observe their daily operation

Prepare urine sediments  
Review Urine 2 X 2 slides  
Interpret urine sediments and, correlate clinically

Reading Assignments:


Kjeldsberg, C, Knight, J, Body Fluids: Laboratory Examination of Cerebrospinal, Seminal, Serous & Synovial Fluids, ASCP Press Chicago, 1993


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Schumann, Berry, Friedman, Sheryl, *Wet Urinalysis; Interpretations, Correlations, and Implications*, ASCP Press Chicago, 2003

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