MLT 112L - Clinical Urinalysis Lab

Approval Date: Effective Term:

Department: MEDICAL LABORATORY TECHNICIAN
Division: Allied Health/Public Safety
Units: 0.50
Grading Option: Letter Grade
Transferability: CSU Transferable
Course is: AA/AS Degree
Repeatability:
Contact Hours per Term:
Lab: 1.50
Associate Degree GE Applicability: No
Recommended Class Size: 15
-Rationale: Station limitations.

Discipline/Minimum Qualifications:

Catalog Description:
Presents urine testing, interpretation, and correlation. Emphasizes qualitative and quantitative clinical examination of urine specimens, including the principle of each reaction, quality control, interpretation, and correlation to other laboratory findings.

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Student Learning Outcome:
1. Explain the criteria of an acceptable specimen including all preanalytical variables that could affect the results.
2. Perform the physical analysis, chemical analysis, and microscopic evaluation of a urine specimen.
3. Compare and contrast normal ranges with pathological conditions and related laboratory tests.

Course Objectives:
1. Demonstrate the use of Standard Precautions as they apply in the Urinalysis laboratory according to Occupational Safety and Health Administration (OSHA) mandates.
2. Demonstrate safe use and disposal of biohazardous materials.
3. Describe and define the types of quality control performed in the Urinalysis department.
4. Describe proper specimen collection.
5. Describe the procedure for the physical analysis of urine testing including specific gravity.
6. Describe the proper use of essential reactants on chemical reagent strips.

http://www.curricunet.com/Canyons/reports/course_outline_html.cfm?courses_id=1732
7. Describe the function of each part of the microscope as it relates to performing microscopic urinalysis.

**Course Content Outline:**

A. Standard Precautions as they apply in the Clinical Urinalysis laboratory according to Occupational Safety and Health Administration (OSHA) mandates.
   1. Basic aspects of infection control policies, including how and when to use personal protective equipment (PPE) or devices (gown, gloves, and goggles).
   2. Use PPE in Urinalysis laboratory.
   4. Pre and post exposure prophylactic measures for handling potentially occupational transmission of certain pathogens.
   5. Disinfectants used to decontaminate the work area when a hazardous spill has occurred or when beginning or ending a laboratory session.
   6. Basic steps in first aid.
   7. Issues in a Safety Program:
      a. Evacuation routes,
      b. Biohazardous material,
      c. Blood borne pathogens,
      d. Standard precautions,
      e. Aerosols,
      f. MSDS (Material Safety Data Sheets).
B. Safe use and disposal of biohazardous material.
   1. Segregation and disposal of various types of waste products generated in the clinical laboratory including the use of sharps containers for needles, lancets, and/or other sharps.
   2. Disposal of biological samples.
C. Quality Control in the Urinalysis department.
   1. The purpose of quality control.
   2. QC necessary for chemical analysis of urine reagent strips.
   3. Origin and use of urinalysis controls.
   4. Internal and external QC.
D. Specimen collection for urinalysis.
   1. Importance of proper specimen collection
   2. Appropriate containers for routine analysis, timed collection and microbiological specimens.
   3. Labeling procedures for urine specimens.
   4. Timed specimens; first morning, random, timed, pooled specimens.
   5. Types of collection; random, midstream, clean catch.
   6. Clean catch-midstream specimens for males and females.
   7. Urine preservatives and/or refrigeration.
   8. Transportation; time and temperature.
E. Physical analysis including specific gravity.
   1. Color, turbidity, and odor as part of the physical analysis.
      a. Normal physical characteristics.
      b. Abnormal physical characteristics and possible causes.
   2. Specific gravity.
   3. Methods used to measure specific gravity.
   4. Corrections to specific gravity due to temperature, high concentrations of glucose and protein.
5. Causes of high and low specific gravity readings in urine.

F. Chemical analysis of urine.
   1. Reagent strips and their chemical reactions.
   2. Causes of false-positive and negative results for each of the analyses when using chemical reagent strips.
   3. Uses and principles of supplementary/confirmatory testing including investigation as why children less than 2 years of age are tested with a copper reduction test for sugar in addition to a reagent strip test.

4. Abnormal results with possible disease states.

G. Functions of each part of the microscope as it relates to performing microscopic urinalysis.
   1. Functions of each part of the microscope.
   2. Proper procedure for performing a microscopic examination of urine.
      a. Formed elements in urinary sediment
      b. Clinical significance of each formed element found in urinary sediment.
   3. Proper care and storage of the microscope.

Methods of Instruction:
Lab:

Methods of Evaluation:
Exams/Tests/Quizzes
Skill Demonstrations

Written assignments

Typical Assignments:
Reading:
Textbook assignments Supplemental reference books Hand outs (lab procedures)

Writing, Problem Solving or Performance:
Problem solving for case studies Short essay answers for some exam questions Some calculations

Other:

Required Materials
Examples:
Book 1
Author: McPherson, R.A. & Pincus M.R.
Title: Henry's Clinical Diagnosis and Management by Lab Methods
Publication Date: 2006
Edition: 21st
Publisher: Saunders
Book 2
Author: Strasinger, Susan King and Marjorie Schaub DiLorenzo
Title: Urinalysis and Body Fluids
Publication Date: 2008
Publisher: FA Davis, Co
Edition: 5th

Course Preparation:
Prerequisite(s): None
Co-Requisite(s): MLT 112
Recommended: None