"Investment in knowledge pays the best interest" Abraham Lincoln

Continuing Education Presenters

Dr. Teresa Campbell

Ms. Sandy Carnes

Mr. Steve Edwards

Dr. Bill Engle

Dr. Charles Faulkner

Mr. Joshua Shepherd

Wednesday November 19th, 2014

421 N Park Avenue Knoxville , TN 37923

LMU Cedar Bluff, Room 137

Thursday November 20th, 2014

300 W. Market Street Kingsport, TN 37660

KCHE, Room 130

Friday November 21st, 2014

1850 Old Knoxville Road Tazewell, TN 37879

Claiborne County Hospital, Conference Room

Lincoln Memorial University

MEDICAL LABORATORY SCIENCE

November 19th—November 21st, 2014

Lincoln Memorial University - Medical Laboratory Science

Sessions:

Scientific Session 304-111–14: Hepcidin's Role In Refractory Sideropenic Anemia: A Case Study Approach

Program Area: Hematology

Level of Instruction: Intermediate

Contact Hours: 1.0

Presenter: **Dr. Bill Engle**, D.D, MS(CLS), MT(ASCP), Associate Professor Chair, Medical Laboratory Sciences, Lincoln Memorial University

Description: This presentation will examine a rare genetic cause of sideropenic anemia, formally called iron deficiency anemia, in which the patient is unresponsive to traditional oral iron therapy. Hepcidin and Hemmojuvelin's role in iron metabolism will be discussed as related to hemoglobin formation.

Objectives:

- Define the following terms and explain their role in iron metabolism: transferrin, hemosiderin, ferritin, and TIBC.
- Compare and contrast iron stores, hemoglobin, serum iron, TIBC, serum ferritin, and RBC morphology in the three major stages of iron deficiency anemia.
- Compare and contrast the roles of hepcidin, HFE, and hemojuvelin in the physiological regulation of iron balance in the body.
- Describe how genetic defects in the iron metabolism proteins can affect the body's iron homeostasis

Dr. Engle began his career as a staff medical technologist in a moderate sized hospital in southern Ky. After obtaining several years of clinical experience, he was promoted to supervisor of the hematology & blood bank departments. It was during this time, that he began his graduate studies. Dr. Engle is the Department Chair and Program Director of a very successful Medical Laboratory Science Program at LMU. He currently serves the ASCLS as the Continuing Education Administrator for the state of Tennessee and is a regular presenter for the ASCLS and the TAPA. He is the keynote speaker for the 2014 ASCLS Tennessee Annual Laboratory Conference in Memphis, Tn. Dr. Engle also serves the National Accrediting Agency for Clinical Laboratory Science (NAACLS) as an Accreditation Pater-Reviewer and an On-Site Inspector.

Scientific Session 304-112–14: What Laboratorians Need to Know About the Ebola Virus Disease

Program Area: Virology

Level of Instruction: Intermediate

Contact Hours: 1.0

Presenter: **Dr. Teresa Campbell**, Pathologist
Associate Professor of Pathology, Medical Director, MLS Program

Description: This lecture will describe the classification and basic virology of the Ebola virus. The history of Ebola virus outbreaks and the epidemiology, pathogenesis and clinical aspects, including laboratory abnormalities and diagnostic tests, of Ebola virus disease will be presented. Lastly, safety issues for laboratory personnel handling specimens from suspected Ebola patients will be discussed with a review of the most recent CDC recommendations.

Objectives:

- Describe the classification, structure, basic genetics and the viral proteins of the Ebola virus and understand how these viral proteins induce disease in humans (pathogenesis).
- Describe the epidemiology of Ebola virus including geographic features, reservoirs, vectors, incubation period, mode of transmission, and mortality rates in humans
- Describe the clinical features of Ebola virus disease including laboratory abnormalities and laboratory diagnostic tests currently in use.
- Know the current CDC recommendations for laboratory personnel.

Dr. Campbell began her distinguished medical career by completing he MD degree from the Medical University of South Carolina. Her residencies included the family practice residency in the Greenville Hospital System, the Anatomic and Clinical Pathology Residency in the Medical University of South Carolina, and the Forensic Pathology Fellowship at the University of Tennessee in Memphis. She has served as the Assistant Medical Examiner in Roanoke, Virginia and the Assistant Medical Examiner in Memphis, Tennessee. Her career also included military service where she served as flight surgeon for the 164th Medical Squadron in the Tennessee Air National Guard. She currently serves the LMU Medical Laboratory Science Program as it Medical Director.

Scientific Session 304-113–14: Urinary Casts: The Importance of Laboratory Identification

Program Area: Urinalysis / Body Fluid Analysis

Level of Instruction: Intermediate

Contact Hours: 1.0

Presenter: **Mr. Steve Edwards**, MS(CLS), MT(ASCP)
Assistant Professor, Lincoln Memorial University

Description: This session will provide a review of the various types of casts that may be found in urine sediment as well as the disease states that may be indicated by their presence. We will examine cast composition, and will discuss how cast formation can provide a unique picture of the physiological conditions within the kidneys.

Objectives:

- Describe the major constituent which provides the matrix for urinary casts
- Discuss the process of cast formation as well as concerns for proper detection and identification
- Compare and contrast the various types of casts that may be formed
- Recognize potential disease states that may be indicated by each type of cast

Mr. Steve Edwards is a 1992 graduate of the LMU Medical Laboratory Science Program and is now an Assistant Professor of this program. Having worked in the clinical field for many years, Steve decided to pursue his dream of teaching others. He completed his MS(CLS) degree from the University of North Dakota and is a valued faculty member at LMU. He is a well-known speaker and has given multiple presentations within his area of expertize at the LMU DeBusk College of Osteopathic Medicine and his most recent presentation was given at the 2014 ASCLS Tennessee Annual Laboratory Conference in Memphis, Tennessee in March 2014

Scientific Session 304-114–14: The Sunshine Vitamin: Laboratory Considerations for Vitamin D Testing

Program Area: Clinical Chemistry

Level of Instruction: Intermediate

Contact Hours: 1.0

Presenter: **Ms. Sandy Carnes**, MS(CLS), MT(ASCP)
Assistant Professor, Lincoln Memorial University

Description: Since the discovery of vitamin D in the 1920's in association with rickets, researchers have learned not only does this vitamin act as a hormone, but it also plays an important role in a wide array of non-skeletal disorders and diseases. Vitamin D deficiency is now considered a pandemic, sparking much debate regarding the definition of "healthy" vitamin D levels and how people should obtain them. The laboratory is vital in the effort to combat vitamin D deficiency. I will discuss laboratory methods employed for vitamin D testing and take a brief look into future possibilities for this assay.

Objectives:

- Explain the metabolism of vitamin D.
- Recognize the importance of vitamin D receptors
- List some of the non-skeletal conditions/diseases that may be improved through maintenance of an optimal vitamin D level
- Discuss the advantages and disadvantages for both LC-MS/MS and immunoassays currently used for vitamin D testing

Ms. Sandy Carnes is a 1995 graduate of the LMU Medical Laboratory Science Program and is now an Assistant Professor in this program. Having worked in the clinical field for many years, she desired to pursue a career pathway to education. After completing her MS(CLS) degree from the University of North Dakota, Ms. Carnes joined the faculty at her alma mater. She is a well-respected speaker in the area of transfusion medicine and her most recent presentation entitled "Blood Bank: Past, Present, Future" was given at the 2014 ASCLS Tennessee Annual Laboratory Conference in Memphis, Tennessee in March 2014

Scientific Session 304-115–14: The Laboratory's Role in the New Guidelines for Cholesterol Treatment

Program Area: Clinical Chemistry

Level of Instruction: Intermediate

Contact Hours: 1.0

Presenter: **Mr. Joshua Shepherd**, PA-C, MMS, MT(ASCP)
Assistant Professor, Lincoln Memorial University

Description: This presentation will compare and contrast the old and the new guidelines for managing and treating cholesterol metabolism disorders as well as a discussion on how laboratory tests will be involved in the new guidelines.

Objectives:

- Compare and contrast the National Cholesterol Educations Programs guidelines (NCEP-ATPIII) with the new guidelines from the American Heart Association and American College of Cardiology
- Compare and contrast the various treatment options for cholesterol disorders
- Discuss the laboratory's role in the management of these new guidelines

Mr. Joshua Shepherd is a practicing board certified Physician Assistant. He provides healthcare services to patients at University Medical Clinic in New Tazewell, TN. Joshua has practiced in the field of Family Medicine for the past 3 years serving Lincoln Memorial University and Claiborne County. He is also Assistant Professor in the Physician Assistant Program at Lincoln Memorial University's DeBusk College of Osteopathic Medicine. He is preceptor for students in both the Physician Assistant and Athletic Training programs. In 2009, he graduated from Lincoln Memorial University with a Bachelor's degree of Science in Medical Technology. He then graduated from the LMU-Physician Assistant Program's inaugural class of 2011 with a Master's degree in Medical Science. He is a member of the PA Programs Students Progress Committee and volunteers locally for Remote Area Medical Volunteer Corps. He was a recipient of the J. Kermit Bailey Award of Clinical Excellence in 2009 and the PA Service Award in 2013 for his service to the community and LMU. He is a member of the National Commission on Certification of Physician Assistants. He currently holds a medical license on the State of Tennessee. He is board certified by the National Commission on Certification of Physician Assistants and the American Society for Clinical Pathology. He is a Harlan County, KY native and now resides in Harrogate, TN

Scientific Session 304-116–14: Toxoplasmosis: Epidemiology and Diagnostic Considerations for Medical Laboratory Scientists

Program Area: Microbiology

Level of Instruction: Intermediate

Contact Hours: 1.0

Presenter: **Dr. Charles Faulkner,** Ph.D.
Assistant Professor of Veterinary Science (Clinical Parasitology)

Description: Toxoplasma gondii is an obligate intercellular parasite that infects a wide variety of warm blooded mammals and birds. Cats are the only known host where sexual multiplications occurs and results in the dissemination of large quantities of oocysts (egg-like structures), often in the millions, into the environment where they are capable of infecting all types of warm-blooded animals (wildlife, companion animals, domestic livestock), including people. Once infected, these "intermediate hosts" unwittingly contribute to the maintenance and perpetuation of T. gondii infection in host populations when the parasite multiplies asexually in the tissues. People become infected with T. gondii by ingesting oocysts shed by cats into the environment, or by consumption of the infected meat products of domestic food animals and wildlife. The spectrum of disease produced by T. gondii ranges from clinically unapparent, to severe with neurologic impairment and death. All females (animals and people alike) are at risk for congenitally infecting their offspring when they acquire the parasite for the first time during pregnancy. Accurate serologic diagnosis of patients with suspected toxoplasmosis is necessary to provide physicians with information to prescribe appropriate chemotherapeutic intervention for improving the health of the patient, and perhaps the unborn child.

Objectives: At the end of this presentation the student will be

- Aware of the public health significance of Toxoplasmosis in human populations
- Able to describe the lifecycle biology and primary ways people become infected with Toxoplasma gondii
- Familiar with the clinical features of disease produced by Toxoplasma gondii
- Will be familiar with the methodologies for demonstrating serum antibodies against Toxoplasma gondii in clinical samples submitted to the laboratory
- Will be able to provide guidance and interpretation of serologic test results to medical personnel for clinical samples submitted to the laboratory
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Dr. Charles Faulkner is a nationally recognized parasitologist. He has given numerous presentations at international, national, and regional scientific conferences. He currently has 18 publications in refereed scientific journals and his current research interests include diagnostic parasitology, epidemiology, and chemotherapy of parasitism; household diagnosis, management, and prevention of parasitic infections; ecology and evolutionary biology of parasitic infection, and paleoparasitology of humans and animals.

Presentation Schedule

Wednesday November 19th, 2014 in room 137 at Cedar Bluff in Knoxville, Tennessee

8:30 am – 9:00 am	Check –In, Main Lobby, Light Refreshments	
9:00 am – 9:50 am Dr. Bill Engle	Scientific Session 304-111-14: Hepcidin's Role In Refractory Sideropenic Anemia: A Case Study Approach	Enrollment Key Code _____
10:00 am – 10:50 am Ms. Sandra Carnes	Scientific Session 304-114-14: The Sunshine Vitamin: Laboratory Considerations for Vitamin D Testing	Enrollment Key Code _____
11:00 am – 12:00 pm Dr. Charles Faulkner	Scientific Sessions 304-116-14: Toxoplasmosis: Epidemiology and Diagnostic Considerations for Medical Laboratory Scientists	Enrollment Key Code _____
12:00 pm – 1:00 pm	**Lunch**	
1:00 pm – 1:50 pm Dr. Tersea Campbell	Scientific Session 304-112-14: What Laboratory's Need to Know About the Ebola Virus Disease	Enrollment Key Code _____
2:00 pm – 2:50 pm Joshua Shepherd	Scientific Session 304-115-14: The Laboratory's Role in the New Guidelines for Cholesterol Treatment	Enrollment Key Code _____
3:00 pm – 3:50 pm Mr. Steve Edwards	Scientific Session 304-113-14: Urinary Casts: The Importance of Laboratory Identification	Enrollment Key Code _____

Presentation Schedule

Thursday November 20th, 2014 in room 130 at the KCHE building in Kingsport, Tennessee

8:30 am – 9:00 am Check –In, Main Lobby, Light Refreshments

9:00 am – 9:50 am Dr. Charles Faulkner	Scientific Session 304-116-14: Toxoplasmosis: Epidemiology and Diagnostic Considerations for Medical Laboratory Scientists	Enrollment Key Code _____
10:00 am – 10:50 am Dr. Bill Engle	Scientific Session 304-111-14: Hepcidin's Role in Refractory Sideropenic Anemia: A Case Study Approach	Enrollment Key Code _____
11:00 am – 12:00 pm Ms. Sandy Carnes	Scientific Sessions 304-114-14: The Sunshine Vitamin: Laboratory Considerations for Vitamin D Testing	Enrollment Key Code _____

12:00 pm – 1:00 pm Lunch

1:00 pm – 1:50 pm Joshua Shepherd	Scientific Session 304-115-14: The Laboratory's Role in the New Guidelines for Cholesterol Treatment	Enrollment Key Code _____
2:00 pm – 2:50 pm Mr. Steve Edwards	Scientific Session 304-113-14: Urinary Casts: The Importance of Laboratory Identification	Enrollment Key Code _____

Presentation Schedule

Friday November 21st, 2014 in the conference room at Claiborne County Hospital Tazewell, Tennessee

8:30 am – 9:00 am	Check – In, Main Lobby, Light Refreshments	
9:00 am – 9:50 am Ms. Sandy Carnes	Scientific Session 304-114-14: The Sunshine Vitamin: Laboratory Considerations for Vitamin D Testing	Enrollment Key Code _____
10:00 am – 10:50 am Mr. Steve Edwards	Scientific Session 304-113-14: Urinary Casts: The Importance of Laboratory Identification	Enrollment Key Code _____
11:00 am – 12:00 pm Joshua Shepherd	Scientific Sessions 304-115-14: The Laboratory's Role in the New Guidelines for Cholesterol Treatment	Enrollment Key Code _____
12:00 pm – 1:00 pm	**Lunch**	

P.A.C.E. Statement: "Lincoln Memorial University is an approved provider of continuing education programs in the clinical laboratory sciences by the ASCLS P.A.C.E. Program."