Transgender 101 - Fundamentals for Health Care Practitioners

Course # 612-405-17 / 1.0 credit hours

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Clinical Program Director
Center for Transgender Health
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Level of Instruction: Basic
Category: Diversity
Target Audience: All are welcome

Description: This presentation provides fundamental cultural competency education to clinical and non-clinical audience members practicing across all settings. The presentation addresses unconscious bias and the stereotypes and myths about the transgender community which impact health care disparities. The presenter will describe at least three communication skills that can be used to demonstrate dignity and respect for this patient population and help foster a welcoming and supportive environment. Lastly, the presentation will address challenges that arise in electronic medical records and other systems when dealing with transgender patients.

Objectives:
At the completion of the presentation, the audience will be able to:

- Discuss the impact of unconscious bias, stigma and discrimination on the healthcare disparities impacting the transgender community
- Demonstrate inclusion and respectful communications for interacting with transgender individuals through use of proper terminology, proper address, and proper questioning techniques
- Identify challenges in the electronic medical record and other systems that impair transgender healthcare delivery

Transgender 101 quiz:

1. What are some of the things you can do when speaking with a transgender patient to show dignity or respect?

2. Describe some of the challenges faced in our Electronic Medical Record when caring for transgender patients? (only need to mention 2-3)

3. Differentiate the difference between gender identity and sexual orientation.

4. List two of the six ways mentioned to recognize and migrate unconscious bias. (only 2 answers are needed)

5. When is the annual transgender day of remembrance?
Mass Spectrometry in the Clinical Laboratory: Enabling Precise Analytical Measurements to Assess Patient Health

Course # 612-413-17 / 1.0 credit hours

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Johns Hopkins University School of Medicine

Level of Instruction: Intermediate
Category: Clinical Chemistry
Target Audience: All are welcome

Description: Mass spectrometry is a highly specific and sensitive analytical tool that can be used to accurately and reliably measure a wide range of clinically relevant analytes for the evaluation of patient health. Several laboratories use mass spectrometry to monitor therapeutic and frequently abused drugs, perform endocrine tests and aid in the diagnosis of infectious disease, and the use of mass spectrometry for clinical diagnostics is increasing. This presentation will introduce the fundamental principles of mass spectrometry with specific attention given to examples of currently used clinical applications of mass spectrometry. Various challenges that clinical laboratories face when implementing mass spectrometry will also be addressed.

Objectives:
At the completion of the presentation, the audience will be able to:
• Explain the fundamental principles of mass spectrometry
• Describe examples of how mass spectrometry assays are used in the clinical laboratory
• Evaluate the advantages and disadvantages of mass spectrometry as a diagnostic tool in the clinical laboratory

Mass spectrometry quiz:

1. True or false: The mass analyzer of a mass spectrometer generates ions.

2. Which of the following mass analyzers has the highest resolution?
   a. Orbitrap
   b. Time-of-flight
   c. Quadrupole
   d. Fourier Transform

3. In MRM experiments, Q2 of a triple quadrupole mass spectrometer is used for _________.
   a. Fragmentation
   b. Ion generation
   c. Fragment ion selection
   d. Precursor ion selection

4. Which of the following statements regarding therapeutic drug monitoring (TDM) is true?
a. The results of TDM testing should not be actionable.
b. Drugs should have a narrow therapeutic index.
c. The relationship between the blood concentration of a drug and a clinical or toxic effect should be ambiguous.
d. The consequences for under- or over-dosing should be very minimal.

5. Compared to immunoassays, LC-MS ________.
   a. Has higher sensitivity and selectivity
   b. Is less expensive
   c. Has higher throughput
   d. Can be automated using instrumentation readily available in most clinical laboratories
An Overview of Interesting Cases Seen in the Clinical Immunology Laboratory

Course # 612-416-17 / 1.0 credit hours

Patrizio Caturegli, MD, MPH
Associate Professor of Pathology and Medicine
Johns Hopkins University School of Medicine

Level of Instruction: Intermediate
Category: Immunology
Target Audience: All are welcome

Description: Review the impact of the Clinical Immunology Laboratory in the diagnosis and management of patients.

Objectives:
At the completion of the presentation, the audience will be able to:
- Explain the principles of immunoassays
- Discuss the clinical utility of immunology tests

1. In the department of Immunology what is the main method for identifying protein abnormalities in serum, urine or CSF
   a. Chemiluminesce
   b. Immunofluorescence
   c. Gel electrophoresis
   d. Flow cytometry

2. What region of the Standard Electrophoresis of Serum Proteins (PEP) is analyzed using the Electrophoresis by immunoblotting method (IFE)?
   a. Albumin
   b. Alpha-1
   c. Alpha-2
   d. Beta
   e. Gamma

3. Edelman and Porter in 1972 were awarded the Nobel Prize for?
   a. Syphilis discoveries
   b. Antibody composition discoveries
   c. Autoimmunity discoveries
   d. Immuno Tolerance discoveries
4. Schnitzler syndrome diagnosis includes
   a. IgM kappa gammopathy
   b. Decreased albumin levels
   c. Elevated IgA levels
   d. Normal gamma bands

5. A spike in the gamma region of a urine specimen indicates the presence of:
   a. IgA
   b. IgG
   c. IgM
   d. Kappa light chains

6. Bence Jones protein is:
   a. immunoglobulin catabolic fragments in the urine
   b. free monoclonal light chains in the urine
   c. polyclonal light chains in the urine
   d. fragments of albumin protein in the urine

7. How does neonatal Graves disease develop?
   a. Rare congenital disease
   a. Mom’s autoantibodies pass in utero to baby
   b. Graves disease is only present in adults
   c. Following birth trauma
Laboratory Hematology Cellular Analysis: Providing Clinicians What They Need

Course # 612-425-17 / 1.0 credit hours

Thomas S. Kickler, MD
Director, Division of Hematology Laboratory
The Johns Hopkins Hospital

Level of Instruction: Intermediate
Category: Hematology
Target Audience: All are welcome

Description: This talk will provide an up-to-date discussion on advances in blood cell counting, including technology and application of new parameters, along with applications of telehematology in a healthcare system.

Objectives:
At the completion of the presentation, the audience will be able to:

- Introduce blood cell counting principles
- Describe new technology in cell counting and analysis
- Describe new blood cell parameters that improve diagnosis
- Describe applications of telehematology in patient care

Laboratory Hematology Cellular Analysis (Heme) quiz:

1. True or False
   Cellavision can be used as a form of Telepathology

2. Select correct answer
   The first hematology automation at JHH was
   a. Wintrobe tubes
   b. Coulter counter
   c. Microscopes

3. Select correct answer
   Technology common to hematology cell counters is
   a. Impedance Counting
   b. Fluorescent
   c. Light scattering from Flow cytometry
4. True or False
Impedance counting is called the coulter principle.

5. True or False
Manual differential counts more cells than automated differential, increasing the chance of accuracy.

6. True or False
Immature granulocytes are indicative of early sepsis.

7. True or False
With automation there is no need for manual review of blood smears

8. Automation does not
   a. Improve TAT
   b. Maximize resources
   c. Help with standardization
   d. Decrease patient safety

9. True or False
Reticulocytes channels monitor RBC development at the cellular level

10. True or False
One benefit of WAM multi-site is Management reporting
Update on Diagnostic Assays for Rapid Detection of Bacteremia

Course # 612-427-17 / 1.0 credit hours

Karen Carroll, MD  
Director, Division of Medical Microbiology  
Professor of Pathology  
Johns Hopkins University School of Medicine

Level of Instruction: Intermediate  
Category: Microbiology  
Target Audience: All are welcome

Description: Bacteremia is a significant cause of morbidity and mortality. Time to appropriate therapy has been shown to impact patient outcome. Several novel diagnostic platforms, mostly performed on positive blood culture bottles, have become available to shorten the detection time of organisms responsible for bacteremia. This presentation will review these diagnostic platforms and discuss their impact on patient management.

Objectives:  
At the completion of the presentation, the audience will be able to:
  - Discuss the importance of bloodstream infections
  - Identify the currently available assays for identification of organisms from positive blood cultures
  - Appreciate the difficulty of direct from whole blood testing

Update on Diagnostic Assays for Rapid Detection of Bacteremia quiz:

1. What is one reason that bloodstream infections so important to diagnose rapidly in patients?

2. List 2 instrument systems that can currently identify some microorganisms directly from whole blood, and provide some resistance gene information.

3. List 2 challenges or potential problems with the systems listed in question 2.

4. Name the instrument that can be used to identify organisms in blood by rapid phenotypic methods. What is one advantage and one disadvantage of this instrument?

5. List one positive clinical outcome resulting from the use of rapid methods vs. conventional methods of detection of bloodstream infections.
Hemolytic Disease of the Fetus and Newborn: Protecting Our Littlest Patients

Course # 612-430-17 / 1.0 credit hours

Heather Smetana, MLS(ASCP)CM, SBBCM
Lead Technologist, Transfusion Medicine
The Johns Hopkins Hospital

Level of Instruction: Intermediate
Category: Blood Bank
Target Audience: All are welcome

Description: The anticipation of a new life is so exciting and wonderful, but just imagine hearing that you are attacking your child and may kill him or her – that is what happens with Hemolytic Disease of the Fetus and Newborn (HDFN). This presentation will discuss why the mother’s antibodies attack her child, review recent HDFN cases, and learn how we can protect the fetus.

Objectives:
At the completion of the presentation, the audience will be able to:
• Explain the pathophysiology of Hemolytic Disease of the Fetus and Newborn (HDFN)
• Describe treatment options for the fetus who has HDFN
• Select appropriate blood products for intrauterine transfusion and newborn red cell exchange in cases of HDFN

Hemolytic Disease of the Fetus and Newborn quiz:

1. What immunoglobulin isotype causes HDFN?
2. What can lead to permanent brain damage in a newborn who has high level of bilirubin?
3. How can HDFN be prevented for what antibody?
4. What are the typical red blood cell requirements for intrauterine transfusion (IUT)?
5. Describe one of the interesting cases presented.
Autopsy Assembled: Cutting-edge Techniques and Fascinating Cases

Warning: Please be advised of the graphic nature of the images in this presentation as they have been taken from actual autopsies.

Course # 612-432-17 / 1.0 credit hours

Jody E. Hooper, MD
Director, Autopsy Division
Director, Legacy Gift Rapid Autopsy Program
Assistant Professor of Pathology
Johns Hopkins University School of Medicine

Level of Instruction: Basic
Category: Autopsy
Target Audience: All are welcome

Description: Very few people have the opportunity to see an autopsy and learn firsthand how it is performed. Exceptional diagnostic techniques contribute greatly to diagnosis, education, research, and care for families. This talk will give a detailed visual tour of an autopsy, show time-honored surgical techniques as well as approaches to special dissections and how they preserve the dignity and cosmetic appearance of the patient. The use of ancillary testing such as microbiology cultures or molecular testing will be briefly reviewed. Gross and microscopic findings of autopsy cases with unexpected, illuminating, and anatomically fascinating findings will be shown in detail.

Objectives:
At the completion of the presentation, the audience will be able to:

• Describe how an autopsy is performed and teach others how the process works
• Describe how additional laboratory testing can contribute to autopsy diagnostics

Cite autopsy cases which have contributed to diagnostic quality, education, and care for families of deceased patients

Autopsy quiz:

1. Once the patient is deceased, what is the usual time limit for an autopsy at JHH?
   a. 24 hours
   b. 36 hours
   c. 48 hours
   d. 72 hours

2. Which organ is removed first from the body?
   a. Heart
   b. Brain
c. Intestines
d. Lungs

3. How long is the brain and spinal cord put into a fixative before it is cut?
   a. One day
   b. One week
   c. Two weeks
   d. A month

4. At JHH, the tongue is removed as a standard part of the autopsy.
   a. True
   b. False

5. Which is not a JHH ancillary test at autopsy?
   a. Toxicology
   b. Metabolic workup
   c. Molecular testing
   d. Electron microscopy
Phlebotomy and Its Impact on Laboratory Testing: The Importance of Obtaining a Good Quality Specimen for Analysis

Course # 612-438-17 / 1.0 credit hours

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NHA-Certified Phlebotomist
Research Specialist, Rheumatology Division
Johns Hopkins University School of Medicine

Level of Instruction: Intermediate
Category: Phlebotomy
Target Audience: All are welcome

Description: This presentation will focus on quality requirements related to sample collection and its impact on laboratory testing. It will include a review of best practices in sample collection, as well as a description of sources of error in the process of venipuncture and how such errors can affect patient care.

Objectives:
At the completion of the presentation, the audience will be able to:
- Recognize sources of error when performing phlebotomy
- Recognize factors that affect sample collection and results
- Identify areas of improvement in sample collection to better serve patients
- Acknowledge the risks involved in deviating from the standard of care in phlebotomy

Phlebotomy and its Impact in Lab Testing quiz:

1. What 5 tasks are involved with the proper collection of a sample?

2. What source of error in clinical chemistry is known to effect glucose and triglycerides?

3. Skewed coagulation test results for PT and PTT can be caused by this source of error.

4. What is an example of a possible reason for a delta check?

5. What is the first thing we can do to make improvements/changes?