Conquering Lab Interpretation

Presented by

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Cyndi completed her nursing education in the U.S. Navy and rose to be a lieutenant commander (0-4). She holds a BS in psychology with a minor in sociology. After obtaining her legal nurse certification, she opened her business, Clinical Review: Certified Legal Nurse Consultants. Earlier she had worked as a security counselor with mentally ill and dangerous inmates of the Minnesota Security Hospital, where she returned in the role of lead psychiatric nurse. Cyndi is in a graduate family nurse practitioner program at Minnesota State University. Currently she divides her professional time at two Level 3 trauma centers in the Twin Cities, Abbott Northwestern Hospital and Fairview Southdale Hospital, working in their intensive care units. Cyndi loves teaching and has spoken nationally on various nursing topics.

6.75 Contact Hours | Course Length: 375 minutes

Program Description

No matter what your area of expertise, no field in medicine spends enough time training you for lab interpretation. Join us as we conquer the interpretation of lab findings to help you gain the clues you need to provide better care to your patients. What we understand, we can then use to set up the plan of the day, to progress the patient towards good outcomes and to predict the next step in the treatment goal. Data collection and understanding are important steps in the development of critical thinking. Hone critical thinking skills through humor and detailed case studies.

Program Learning Outcomes

This program prepares the learner to:

1. Understand the intricacies of the differential on the complete blood count (CBC).
2. Classify the three categories that the 400 different types of anemia fall into.
3. Recognize the clues the basic metabolic panel (BMP) gives to acute renal failure and how the cause will drive how we treat decreased urine output.
4. Interpret lab and ECG changes commonly seen with acute coronary syndrome (ACS) versus a myocardial infarction.
5. Learn a simple three-part tool to make interpretation of arterial blood gases (ABGs) fast and easy.
6. Recognize how systemic inflammation can trigger the progression of illness and how the labs become tools in staving off that process and treating septic shock.
7. Understand the relationship among the hypothalamus, pituitary gland and thyroid function.
8. Identify effective interventions in electrolyte imbalances.
9. Differentiate between diabetic ketoacidosis (DKA) and hyperosmolar hypoglycemic state (HHS) and how the treatment varies.
10. Identify which part of the coagulation panel relates to the intrinsic and extrinsic pathways on the clotting cascade.
11. Classify findings on the disseminated intravascular coagulation (DIC) panel.
12. Differentiate expected findings in cerebral spinal fluid (CSF) as they relate to meningitis (bacterial and viral) and viral encephalopathy.
13. Learn the conversion of hemoglobin A1c to mean blood sugar.

Topics Covered

1 Why are Labs so Important? & Complete Blood Count with Differential — 91 minutes

Module Description
In a world of ever-spiraling healthcare costs, never has it been more important to understand lab findings and expenses related to those tests. One of the most common tests is the complete blood count (CBC) and, when appropriate, the differential. This section will also discuss the hemoglobin A1c test..

Module Learning Outcomes
This module prepares the learner to:
1. List five causes of abnormal findings in the white blood cell counts.
2. Understand the differential and the clues it offers related to health status.
3. Identify the current standard for transfusing a patient based on hemoglobin levels.

2 Basic Metabolic Panel & Renal Labs — 66 minutes

Module Description
The basic metabolic panel (BMP) gives a lot of basic clues to glucose level, kidney function, electrolytes and acid-base balance. This module will also discuss how labs can help determine the causes of acute renal failure, how each cause is decided and treatment interventions. Finally, common electrolyte abnormalities and interventions to treat will also be covered.

Module Learning Outcomes
This module prepares the learner to:
1. Compare and contrast prerenal, intrinsic and postobstructive causes of acute renal failure.
2. Calculate the corrected calcium and relate how it differs from a serum calcium level.
3. Classify changes found on the ECG related to hyper- and hypokalemia..

3 Comprehensive Metabolic Panel & Liver Function — 32 minutes

Module Description
The comprehensive metabolic panel (CMP) is the basic metabolic panel (BMP) plus liver function tests. This module will discuss the liver, how lab findings become clues to abnormal function and common complications related to liver dysfunction: jaundice, ascites and hepatic encephalopathy..

Module Learning Outcomes
This module prepares the learner to:
1. Identify lab findings related to liver dysfunction and determine how the direct and indirect bilirubin can give us clues to where the dysfunction is occurring.
2. Recognize common complications with severe liver dysfunction and their causes and treatments.

4 Cardiac Labs — 41 minutes

Module Description
Understand laboratory findings related to cardiac panels, as well as ECG clues, while also differentiating between acute coronary syndrome (ACS) and acute myocardial infarction (AMI)..

Module Learning Outcomes
This module prepares the learner to:
1. Discuss the difference between a STEMI and NSTEMI along with bare metal stents (BMS) as opposed to drug-eluding stents (DES).
2. Interpret ECG changes in ischemia and myocardial infarction and understand how to recognize an old infarct.
3. Review cardiac panels and the clues they hold.

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5 Pulmonary Labs — 47 minutes

Module Description
Review the three types of potential blood gases (arterial, mixed-venous and venous samples), when each is the right choice and how each is interpreted. Reading ABGs can be difficult, so a simple tool that can be used as a template will be discussed, along with the D-dimer as it relates to a pulmonary embolism.

Module Learning Outcomes
This module prepares the learner to:
1. List when the arterial blood gas (ABG), mixed-venous blood gas (MVBG) and venous blood gas (VBG) are each the appropriate test to select.
2. Interpret ABGs using a simple tool and recognize the most common causes for abnormal findings.
3. Recognize when D-dimmers are most helpful in predicting a pulmonary embolism.

6 Labs in Sepsis — 23 minutes

Module Description
Sepsis is the leading cause of noncardiac-related deaths in intensive-care settings. We will evaluate how systemic inflammation can become self-propagating and how labs not only can help us identify sepsis, but can also guide our treatment of this ominous diagnosis.

Module Learning Outcomes
This module prepares the learner to:
1. Identify the role of the procalcitonin in sepsis.
2. Understand the Gram stain/antibiotic susceptibility testing (AST) and how the two drive antibiotic therapy.

7 Neurology: Meningitis, Encephalitis, Lumbar & Thyroid — 22 minutes

Module Description
Understanding the lumbar puncture is our focus in this module: how we perform the procedure, how we read it and what the resulting interventions are. This module will also discuss thyroid function, exploring how abnormal findings in the hormones related to the hypothalamic-pituitary access (TRH and TSH) and thyroid (T3/T4) guide the treatment plan.

Module Learning Outcomes
This module prepares the learner to:
1. Differentiate the findings and pathophysiology of bacterial meningitis, viral meningitis and viral encephalitis.
2. Identify how the treatment plan is driven by the cause.
3. Recognize the collaborative relationship of the hypothalamus and the pituitary gland in thyroid function.
4. List the hormones related to each of the above.
5. Interpret thyroid function tests.

8 Coag & DIC Panels — 28 minutes

Module Description
Coagulation panels help us assess clotting ability of common anticoagulants given to our patients. But adding other tests to the coag panel can also assess for life-threatening complications and disseminating intravascular coagulation (DIC).

Module Learning Outcomes
This module prepares the learner to:
1. Analyze which parts of a classic coagulation panel are impacted by commonly used medications.
2. Plan and prioritize interventions as they relate to DIC.
3. Review reversal agents used in bleeding related to medications and the blood product of choice for bleeding related to DIC.

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9 Diabetic Ketoacidosis, Hyperosmolar Hypergylcemic State & Urinalysis — 25 minutes

Module Description
DKA and HHS are two hyperglycemic states that share many similarities, but also many differences. This module will discuss those differences and how nurses fear complications that can kill patients under their care. Urinalysis (UA) is such a commonly sent test, but it has a great deal of variation on how it is interpreted by healthcare providers. Learn common guidelines for how to determine whether the patient has a urinary tract infection.

Module Learning Outcomes
This module prepares the learner to:
1. Compare and contrast presentation and lab findings for DKA and HHS.
2. Differentiate between life-threatening complications that can kill patients with either DKA or HHS.
3. Recognize the difference in symptoms related to urinary tract infections (UTIs) based on age.
4. Identify the most important finding when deciding whether a UTI is present.

Accreditation

RN/LPN/LVN/Other: 6.75 Contact Hours

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