



Lab Update

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LabUpdate is a periodic publication of the Clinical Laboratories of UC Health. By way of this publication, lab users are provided: 1) updated operational information relevant to the practice of laboratory medicine within UC Health facilities, and 2) didactic material generally applicable to laboratory medicine.

LAB UPDATE

University Hospital Clinical Laboratory

If you are interested in the on site availability of a particular test, please contact the Laboratory Client Services Department at 584-0696 or via email to Jenny Ford at jennifer.ford@uchealth.com.

Special Chemistry

VZV, CMV and EBV Testing by Diasorin

On September 6th, 2012, UC Health Laboratory began using the Diasorin chemiluminescence immunoassay (CIA) to detect IgG antibody to VZV in serum specimens, both CMV- specific IgM ("CMV IgM ANTIBODY") and CMV- specific IgG ("CMV IgG ANTIBODY") in serum specimens and detect IgM and IgG antibody to EBV viral capsid antigen (VCA) in serum specimens.

VZV testing-

To order VZV IgG testing use LAB162 in EPIC. Please note that this test is not suitable to determine vaccine-induced immunity. Due to the low volume of orders requesting testing for IgM antibody to VZV, we will continue to send serum specimens to LabCorp for VZV IgM detection.

Comparison studies demonstrate higher sensitivity and specificity (67% and 100%, respectively) than that of the reference method (55% and 98%, respectively). In our evaluation of this assay, our lab reports a 100% sensitivity and 90% specificity on split samples in detecting IgG to VZV.

CMV testing-

To order CMV IgG and CMV IgM use LAB3343 in EPIC. Individual CMVIGG (LAB3347) and CMVIGM (LAB3348) are available in EPIC as well. Evaluation of the Diasorin assay measuring IgM antibody to CMV demonstrates a higher sensitivity and specificity (95% and 100%) than the currently-used method, which has a reported sensitivity of 84% and a specificity of 89% (1). The Diasorin assay method has a reported 100% sensitivity and 99% specificity in detecting IgG antibody to CMV, which is equivalent to the currently-used method (2).

In detecting both CMV- specific IgM and CMV - specific IgG, our lab reports 100% sensitivity and 100% specificity on split samples.

EBV testing-

To order EBV IGM use LAB3077 in EPIC. To order the EBV VCA AB use LAB863 in EPIC.

Published studies comparing our Diasorin method with the method employed by our reference lab show similar performance. Measurement of IgM antibody to EBV VCA shows specificities in the 96-98% range; the sensitivities of both methods are approximately 89% (1). Measurement of IgG antibody to EBV VCA shows 98% concordance (1). Validation studies performed in our laboratory confirm the concordance of our assays with the method of our reference laboratory.

The assays are performed Mondays, Wednesdays, and Fridays with a turnaround time of 3 days. For questions regarding the interpretation of the results of these tests, please contact Dr. Frey at 584-3835. For technical questions, call Brenda Karr at 584-8012.

Epic Information

Accucheck Patient ID

If the Accucheck meter does not recognize the patient ID, dock the meter again and wait for the meter to return to idle. Remove the meter from the dock and re-scan the armband. If the meter indicates "Invalid Patient ID", a 12 digit number is needed and the operator must manually add 2 (or 3) leading zeros before manually entering the CSN number. Do NOT enter the Medical Record number or miscellaneous, random numbers. When leading zeros are entered, the result will not post into EPIC until the POC Lab staff edits the record.

Beta(β)-hydroxybutyrate test to replace Acetest®

Ketosis is a common feature in acutely ill patients. In subjects suffering from starvation, acute alcohol abuse, or diabetes mellitus, ketosis can result in severe life-threatening metabolic acidosis. The presence and degree of ketosis can be determined by measuring blood levels of beta (β)-hydroxybutyrate (also known as 3-hydroxybutyric acid or 3-hydroxybutyrate). Ordinarily, β -hydroxybutyrate is the ketoacid present in the greatest amount in serum. It accounts for approximately 75% of the ketone bodies which also include acetoacetate and acetone. During periods of ketosis, β -hydroxybutyrate increases even more than the other two ketoacids (acetoacetate and acetone), and has been shown to be a good index of ketoacidosis, including the detection of subclinical ketosis. In diabetics, the measurement of β -hydroxybutyrate as well as blood glucose can help to assess the severity of diabetic coma and help exclude hyperosmolar non-ketotic diabetic coma. The β -hydroxybutyrate assay is specific for β -hydroxybutyrate and shows no cross-reactivity with acetoacetate or acetone.

Specimen collection

Serum or heparinized plasma

Stable 1 week at 2-8°C (separated from cells)

Ordering:

Horizon test code: BHB (Beta Hydroxybutyrate)

EPIC test code: LAB456

Venous Blood Gas (VBG)

What is “blood gas”?

The primary blood gases are oxygen (O_2) and carbon dioxide (CO_2). O_2 is found in the air we breathe in, and CO_2 is found in the air we exhale. Both O_2 and CO_2 are carried in blood. O_2 is found in hemoglobin, which is an iron containing protein in red blood cells. CO_2 is carried in the plasma, which is the liquid portion of the blood (that which does not contain red blood cells, white blood cells or platelets).

Normal values in arterial blood gas:

The pH of arterial blood is 7.35-7.45, the pO_2 is 89-100 mmHg and the pCO_2 is 35-45 mmHg.

Normal values in venous blood gas:

The pH of venous blood is 7.32-7.42, the pO_2 is 25-40 mmHg and the pCO_2 is 41-51 mmHg.

The pH of venous blood is slightly decreased due to the transfer of H^+ protons from the diffusion of CO_2 into the red blood cells. The pO_2 is decreased due to the diffusion of O_2 to the tissues and the pCO_2 is increased due to the diffusion of the waste product into the red blood cells.

Venipuncture draw

a. Collection:

Blood should be drawn using sodium or lithium heparin tubes (no gel tubes). Specimen should be placed on ice and immediately transport to the lab (within 15 minutes after collection).

b. Ordering:

Horizon test code: VBG (Blood Gas, Venous)

EPIC test code: LAB79

c. Reference Range

Only pH reference range will be reported

Line draw

a. Collection:

Use heparin line draw procedure.

Specimen should be immediately transported to the lab (within 15 minutes after collection).

b. Ordering:

Horizon test code: LDVBG (Line Draw Blood Gas, Venous)

EPIC test code has been submitted for build

c. Reference Range

Reference range will be reported for all analytes

Flu Testing Reminder

Influenza season runs from October – March. As we begin to see more cases of influenza-like illness in the community, it is good time to remind everyone that UH Microbiology and Molecular Diagnostics Laboratory offers a rapid PCR test for Influenza A and B. The test is available 24-7 and has a 12 hour turn-around time, with results often available within 4 hours of receipt in the laboratory. Nasopharyngeal swab or nasal wash are the only specimens that can be tested using this procedure. A positive PCR for influenza will be called to the ordering physician as a critical value. Physicians have the option to order Respiratory Viral Culture (RVC) on negative Influenza PCR specimens, if they wish, by calling the lab within 72 hours of specimen collection. In EPIC, this test is named **Influenza A+B PCR**. Please direct any question to Dr. Rhodes at 584-3923 or Vicki Stegner 584-6014.