Billings Clinic

Laboratory Communiqué

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The Laboratory Communiqué is a quarterly publication released by Billings Clinic Laboratory Services as an informational tool for medical staff and laboratorians.

In This Issue

New Testing

HSV 1&2/VZV PCR

On May 1, we implemented a new molecular test, HSV 1&2/VZV PCR to replace the Herpes Viral culture. This change will improve the turn-around-time of results and has improved sensitivity and specificity of the testing.

Clinical: Herpes simplex virus types 1 and 2 are DNA viruses of the family Herpesviridae. HSV infections in humans can cause lesions at a variety of cutaneous and mucocutaneous sites. These lesions can be the result of the primary infection or they can result from a reactivation of the latent virus, causing recurrent episodes of the disease. HSV-2 is the most common cause of genital infections due to venereal transmission; HSV-1 is commonly associated with other disease locations although both serotypes have been shown to cause disease in all locations of the body.

Varicella-zoster virus, also known as Human herpes virus 3 (HHV-3), is also a DNA virus of the family Herpesviridae. Primary VZV infection results in chickenpox (varicella), which may rarely result in complications including encephalitis or pneumonia. Even when clinical symptoms of chickenpox have resolved, VZV remains dormant in the nervous system of the infected person (virus latency). In approximately 10-20% of cases, VZV reactivates later in life producing shingles. Serious complications of shingles include postherpetic neuralgia, zoster multiplex, myelitis, herpes ophthalmicus or zoster sine herpete.

Method: The Solana HSV1+2/VZV Assay amplifies and detects viral DNA isolated from cutaneous or mucocutaneous lesion samples. The assay consists of two major steps: 1) specimen preparation, and 2) amplification and detection of target sequences specific to HSV-1, HSV-2 and/or VZV using Helicase-Dependent Amplification (HDA) in the presence of a target-specific fluorescence probe.

Change in Method

CSF Cell Counts – GloCyte Instrument

Test: 3085

CPT: 80950

LOINC: 52816-6 (TNC)
791-4 (RBC)

Lab Week

April 22-28th-Carnival Week

Changes to Testosterone Coming Soon

Specimen: Cutaneous and Mucocutaneous Lesion Samples. Specimen swabs are submitted in Viral Transport Media (M6). Other acceptable viral transports are: M4, M5 and UTM. Store and/or transport at 2-8ºC (refrigerated) or at -20ºC for up to 7 days after collection.

Interpretation: HSV 1: Not Detected, Detected, Invalid
HSV 2: Not Detected, Detected, Invalid
VZV: Not Detected, Detected, Invalid

Change in Methodology

GloCyte Automated CSF Cell Counts

On May 1, we implemented the GloCyte analyzer for performing automated CSF Cell Counts. The GloCyte delivers highly accurate and precise TNC (Total Nucleated Cells) and RBC results using a combination of fluorescence technology, highly specific reagents and an intelligent counting algorithm. A minimum of 60µL of CSF is needed to determine the RBC and TNC count in CSF samples.

The GloCyte consolidated our two previous methods which were the AUWI instrument for an automated cell count and the manual hemocytometer method. Which method we used was dependent on the volume of CSF submitted to the lab for the cell counts. If >1.0 mL was received, we would use the AUWI for a fully automated cell count. If <1.0 mL was received, we would perform a manual cell count. Both these methods are still available as a backup to the Glocyte.

The minimum required 60µL CSF sample will certainly increase the accuracy and efficiency of performing CSF cell counts on the very small volume CSF samples collected from pediatric and NICU patients. Also, with the change in methodology, we will now report the WBC Count as a TNC (Total Nucleated Cell) Count. This is a more accurate and universally used terminology for cells seen in CSF. Cells seen in CSF may include:

- Mature peripheral blood cells
- Immature hematopoietic cells
- Tissue cells
- Malignant cells

If the TNC count is >5 cells/µL, a manual differential will be performed to identify the nucleated cells. Our TNC (WBC) reference ranges for the different age groups have not changed.

Method: Using a combination of fluorescence imaging and a unique sample cartridge, the stained sample is deposited onto the disposable cartridge and vacuum is applied to accelerate the capturing of cells. The cells captured in the cartridge are then

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imaged and enumerated by the automated cell counter. The use of disposable cartridges prevents any carryover between samples and infectious specimens can be processed without worry.

Specimen: Minimum of 60µL is used for the two Glocyte counts (RBC and TNC). CSF should be collected in a sterile container and processed within 4 hours of collection due to the instability of cellular constituents. If the TNC count is >5 cells/µL a differential will be performed.

In general, CSF should be collected into 4 separate allotments with the tubes labeled in order of collection.

a. Tube 1 is saved for possible cell counts to help distinguish a traumatic tap from a subarachnoid hemorrhage. This is routinely required by the Emergency Department.
b. Tube 2 is used for chemistry and immunological studies.
c. Tube 3 is used for microbiology testing.
d. Tube 4 is used in hematology for the cell count and differential and can be also be used for cytology.

Interpretation: Cell counts are reported in cells/µL or mm^3. Normal ranges have been established for Billings Clinic as follows:

0 – 28 days	0 – 12 WBCs/µL	0 – 5 RBCs/µL
28 – 56 days	0 – 6 WBCs/µL	0 – 5 RBCs/µL
56 days – 11 years	0 – 7 WBCs/µL	0 – 5 RBCs/µL
11 – 150 years	0 – 5 WBCs/µL	0 – 5 RBCs/µL

Medical Laboratory Professionals Week

Medical Laboratory Professionals Week, April 22- 28, 2018, is an annual celebration of medical laboratory professionals and pathologists who play a vital role in health care and patient advocacy!

The Laboratory celebrated Lab Week with a Carnival Theme. Carnival games and Carnival food, especially the hotdogs, popcorn and cotton candy were enjoyed by all! In an email to the laboratory staff, Jena Devries, our Marketing Coordinator wrote;

Did you know?! That Histology cut 86,431 blocks in 2017!! Here are some more histology stats:

- Total Special Stains in 2017: 6,365
- Total Immunofluorescence Antibody Stains: 1,466
- Total Immunohistochemistry Stains: 11,651
- Total Number of Cases in Histology (including dermatology, bone marrow and general surgical cases): 25,432
- Total number of blocks cut by Histology in 2017: **86,431**

Test Reagent Changes

Testosterone II

Coming soon will be a reagent change in our Testosterone assay on the Abbott Centaur. This new reagent will require a reference range change. Communication will be coming as we implement this new testosterone reagent.

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