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 Tests

Drugs of Abuse, Urine -13 Test Panel

Effective December 12, 2012 our laboratory implemented a new urine DOA test that utilizes the MEDTOX*Scan*® Test Drugs of Abuse Test System. This test system includes the one-step competitive membrane-based immunochromatographic test device and the MEDTOX*Scan*® Reader, which interprets and reports the test results. The test device includes antibody-colloidal gold, drug-conjugates and a control line.

The MEDTOX*Scan*® test device has a 13 test configuration and detects the absence or presence of Amphetamine, Barbiturates, Benzodiazepine, Buprenorphine, Cocaine, Methamphetamine, Methadone, Opiates, Oxycodone, Phencyclidine, Propoxyphene, Cannabinoids and Tricyclic Antidepressants or their metabolites. Our previous urine DOA panel performed on the Abbott Instruments tested for 7 drugs. The MEDTOX*Scan*® Test Drugs of Abuse Test System detects drug classes at the following cutoff concentrations:

AMP	500 ng/mL	BAR	200 ng/mL	BZO	150 ng/mL
BUP	10 ng/mL	COC	150 ng/mL	MAMP	500 ng/mL
MTD	200 ng/mL	OPI	100 ng/mL	OXY	100 ng/mL
PCP	25 ng/mL	PPX	300 ng/mL	THC	50 ng/mL
TCA	300 ng/mL				

Many factors influence the length of time required for drugs to be metabolized and excreted in the urine and thus the time period during which drug metabolites are detected in the urine. These include the rate of urine production, the volume of fluid consumption, the amount of the drug taken, the urine pH, and the length of time over which the drug was consumed. Lower detection levels may increase the detection window.

Specimen Requirements: Fresh urine specimens. Urine specimens do not require any special handling or pretreatment. If necessary, urine specimens may be refrigerated at 2-8°C for two days. It is always best to test urine specimens immediately after collection.

Interpretation: Negative or Positive for the presence of any of the 13 drugs of abuse or their metabolites listed above. This test should be used for medical purposes only. It is recommended that positive results be confirmed by another method.

Blood Lead Testing

Effective December 20, 2012, Blood Lead Testing became available for our pediatric patients. Testing is performed Monday through Friday at Billings Clinic Blood Draw by appointment only.

Children are especially sensitive to the effects of lead. Lead can affect nearly every part of the body and is particularly harmful to the developing central nervous systems of young children and can lead to IQ deficits, cardiovascular, immunological and endocrine issues. Blood lead levels that can result in neurological damage may not produce obvious physical symptoms, so excessive blood lead can go unrecognized and untreated. Even lead exposure below the 10 µg/dL "level of concern" threshold established by the CDC can impact children's education, resulting in poorer performance on tests of math, reading and other academic skills.

The test is performed on the LeadCare II® System manufactured by ESA BioSciences, Inc. The LeadCare II® System relies on electrochemistry and a unique sensor to detect lead in whole blood. Most lead is carried in red blood cells. When a sample is mixed with the Treatment Reagent, the red blood cells are lysed and the lead is made available for detection. During the test procedure, an electrical current causes the lead to collect on the sensor which is then measured and reported in µg/dL. In this method, gold is used in place of mercury which was used in the decades old method of Anodic Stripping Voltammetry (ASV).

The test is performed with fresh whole blood collected by capillary puncture at the site of testing. An alternate specimen is fresh venous blood collected with EDTA as the anticoagulant.

The reference range for blood lead is <10 µg/dL. A capillary result >10 µg/dL will be rechecked immediately by drawing a venous sample and rerunning the test. If the retest lead is still >10 µg/dL, the venous sample will be sent to Mayo Laboratories

for confirmation. All lead testing is reported to the Montana Department of Public Health and Human Services.

Test Updates

Wintrobe Sed Rates

Due to the discontinuation of the supplies used to perform the Wintrobe Sed Rate test and the low volumes of requests for this test, Billings Clinic has made the decision to remove this test from our test menu.

The replacement test for the Wintrobe Sed Rate will be the Westergren Sed Rate. The order number for this test is 1111 and the pricing will be the same as the Wintrobe Sed Rate. This change was effective November 28, 2012.

If you have any questions or concerns regarding this decision, please feel free to contact Stacey Bailly at extension 4062 or Dr. Linfesty at extension 4658.

Plavix Response Assay (VerifyNow P2Y12 Test)

The instrument manufacturer, Accumetrics, made a modification to the result report with a recent instrument software upgrade. Our lab implemented this change November 19th. The modification is that the P2Y12 Test will no longer report Base or % Inhibition results. The only result reported will be the same PRU (P2Y12 Reaction Units) result.

Accumetrics made this modification because the PRU result has become widely established. Over the past several years, a tremendous and rapid accumulation of data has changed the practice of how to evaluate platelet reactivity measurements, focusing on absolute reactivity (i.e. PRU) as opposed to the magnitude of change in reactivity (i.e. % Inhibition).

The VerifyNow P2Y12 Test uses ADP as the agonist (platelet activator). The PRU result is a direct measurement of platelet reactivity to ADP and the pharmacodynamic effect of the P2Y12 inhibitor. PRU results less than the reference range are specific evidence of the presence of an antiplatelet effect due to a P2Y12 inhibitor. The Reference Range is 194-418 PRU.

Billings Clinic

Laboratory Services

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Reference Range Updates

Chemistry Department

	New	Old
Vitamin B12:	213 - 816 pg/mL	157 – 1059 pg/mL
Folate, Serum/plasma:	7.0 - 31.4 ng/mL	7.2 – 15.4 ng/mL
Homocysteine, Males:	5.46 - 16.20 µmol/L	5.90 – 16.00 µmol/L
Females:	4.44 – 13.56 µmol/L	3.36 – 20.44 µmol/L

(based on fasting specimens)

Hematology Department

The reference range for the Reticulocyte count has been changed due to a change in the calibration standards. SYSMEX, Inc. made this change to standardize the reticulocyte counting between all their instrument platforms.

	New	Old
Retic Count	0.88 - 2.88%	0.7 - 2.3%
Retic Absolute	28 - 174 $x10^9$/L	22 – 139 $x10^9$/L

For more information about Billings Clinic Laboratory please call (406) 657-4060. www.billingsclinic.com.

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