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RAPID PLASMA REAGIN (RPR) NEONATAL SCREEN

THOMAS NOVICKI, PHD, DABMM

In accordance with the American Academy of Pediatrics guidelines, evaluation of a neonate suspected of having congenital syphilis should include testing with a non-treponemal blood test (i.e., RPR or VDRL). Effective 01/22/2013, the RAPID PLASMA REAGIN NEONATAL SCREEN (test code: RPRNEO) test will be available for the evaluation of neonatal syphilis serostatus.

NOTES

- Positive results from this test ***will not*** be confirmed with a second treponemal test as recommended by the CDC for individuals over the age of one month. For the determination of syphilis serostatus in individuals greater than one month in age, order SYPHILIS ANTIBODY, IgG (test code: SYPHAB).
- All positive samples will be titrated to end-point.
- The RPR (RAPID PLASMA REAGIN), THERAPEUTIC MONITORING (test code: RPRTM) test may be used with mothers known to be syphilis seropositive by conventional testing who have been previously treated for syphilis in order to follow maternal and neonatal RPR titers.
- See the *American Academy of Pediatrics Red Book: 2012 Report of the Committee on Infectious Diseases* for details on neonatal syphilis.

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TEST INFORMATION

This semiquantitative test is intended for testing neonates (< 1 month of age) only. It does not include a confirmatory treponemal test as recommended by the CDC for individuals one month of age and above. Order Syphilis Antibody, IgG (test code: SYPHAB) as the primary syphilis diagnostic test.

Test Name
RPR (Rapid Plasma Reagin), Neonatal (< 1 MO. of Age)

Test Code
RPRNEO

Specimen Requirements
0.5 mL of Serum

Minimum Volume
0.3 mL of Serum

Rejection Criteria
Gross hemolysis or lipemia. Mild hemolysis ok.

Available
Monday through Friday

Reference Value
Negative

CPT Code
86592

QUESTIONS

Please contact Dr. Thomas Novicki or Dr. Thomas Fritsche with clinical and interpretive questions regarding this test at extension 1-6700 or 800-222-5835.

REFERENCE

American Academy of Pediatrics. Syphilis. In: L.K. Pickering *et al.* (Eds.) Red Book: 2012 Report of the Committee on Infectious Diseases. AAP, Elk Grove Village, IL. 2012: pp. 690-702.

RAPID URINE DRUG SCREEN AVAILABLE AT MARSHFIELD REGIONAL LABORATORIES

JOYCE FLANAGAN, PHD, DABCC, FACB

Effective on or about January 28, 2013, DRUG SCREEN, RAPID URINE, a single-use, rapid drug screen test with a 2-hour onsite turnaround time will be available at the following Marshfield Clinic regional laboratory sites: Eau Claire, Lake Hallie, Merrill, Minocqua, and Wausau. The following center

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laboratories already have this test available: Marshfield, Park Falls-Flambeau Hospital, Rice Lake-Lakeview Medical Center, and Weston-Diagnostic and Treatment Center.

A positive result is reported as "presumptive positive"; a follow-up confirmatory test is highly recommended. Add-on testing can be ordered within five days of original sample submission.

The test is performed on a dipstick-like cartridge using an immunochromatographic method with predetermined cutoff levels (Table 1). Thirteen drug classes are screened by this test: Amphetamines (AMP), Barbiturates (BAR), Buprenorphine (BUP), Benzodiazepines (BZO), Cocaine (COC), Methamphetamine (MAMP), Methadone (MTD), Opiates (OPI), Oxycodone (OXY), Phencyclidine (PCP), Propoxyphene (PPX), Tricyclic Antidepressants (TCA), and Cannabinoids (THC).

Table 1

Drug Class	Cutoff level (ng/mL)	Antibody Targeted for	Sensitive to	Less Sensitive to
AMP	500	d-Amphetamine	d-Amphetamine MDA	l-Amphetamine
BAR	200	Butalbital	Butalbital, Phenobarbital Butabarbital Amobarbital Secobarbital Pentabarbital	
BUP	10	Buprenorphine	Buprenorphine Nor-buprenorphine	
BZO	150	Nordiazepam	Nordiazepam Alprazolam Flurazepam metabolite Diazepam Oxazepam Temazepam	Lorazepam Midazolam Clonazepam Triazolam
COC	150	Benzoylecgonine		
MAMP	500	d-Methamphetamine	d-Methamphetamine MDMA	l-Methamphetamine
MTD	200	Methadone	Methadone	
OPI	100	Morphine	Morphine Codeine Hydrocodone Didydrocodeine	Nalorphine Levophanol Hydromorphone

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Drug Class	Cutoff level (ng/mL)	Antibody Targeted for	Sensitive to	Less Sensitive to
OXY	100	Oxycodone	Oxycodone Oxymorphone	Opiates, however, high concentration may cause a positive oxycodone screen, in addition to a positive Opiate Screen
PCP	25	Phencyclidine	PCP	
PPX	300	Norpropoxyphene	Norpropoxyphene Propoxyphene	
TCA	300	Desipramine	Desuoramine Ampitriptyline Nortriptyline Imipramine NorDoxepin Maprotiline	Trimipramine Doxepine
THC	50	11-Nor-9-Carboxy-delta 9 THC		

Cross-reactivity of this rapid immunoassay can result in a false-positive result, which is particularly common for the amphetamine class. Table 2 is a short list of common cross-reactants.

Table 2

Drug Cross-Reactants	
Drug	**Cross-reactant**
Cannabinoids	NSAIDs, Marinol, Pantoprazol
Opioids	Poppy seeds, chlorpromazine, rifampin, quinine, quinolones
Amphetamines	Ephedrine, phenylephrine, procaine, fenfluramine, phenylethylamine, methylphenidate, trazodone, bupropion, desipramine, amantadine, ranitidine, phenylpropanolamine, Vicks Vapor Spray
PCP	Chlorpromazine, thioridazine, meperidine, dextromethorphan, diphenhydramine, doxylamine
Benzodiazepine	Oxaprozin (Daypro*), sertraline, efavirenz
Methadone	Propoxyphene, Seroquel

False-negatives can result when the concentration of analyte is below the cutoff value or the drug is not reactive to the assay such as fentanyl, a synthetic opioid that does not cross-react with opiates or oxycodone. Attention should be paid when interpreting test results, especially for a punitive purpose. A confirmatory test is highly recommended when discrepancy exists to that of the patient's clinical information.

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TEST INFORMATION

Test Code
DRUGS
Clinic (Clinical Order Manager): Drug Scn, RAPID Urine
Hospital (Centricity): Drug Scn, Urine RAPID
Downtime: Write-in (Form II)

Specimen Requirements
30 mL random urine, no preservatives

Minimum Sample
2 mL

Storage
Room temp, refrigerated or frozen sample acceptable

QUESTIONS

Contact Bryan Robeson, Technical Manager at 715-221-6334 for technical assistance or Joyce Flanagan, PhD at 715-221-6310 for interpretative assistance.

Note: Rice Lake-Lakeview M.C., and Weston Diagnostic and Treatment Center currently use the 12 test panel (without Buprenorphine). These sites will add Buprenorphine when their current 12 test MedTox cartridge inventory is depleted.

REFERENCES

- MedTox Profile-V MedToxScan Drugs of Abuse system package insert.
- Moeller, KE, Lee, KC et. al. Urine Drug Screening: Practical Guide for Clinicians. Mayo Clin Proc. Jan 2008; 83(1):66-76.
- Christo, PJ, Manchikanti, L et.al. Urine Drug Testing in Chronic Pain. Pain Physician 2011; 14: 123-143.

NEW D-DIMER TEST IN THE LAB - CHANGES IN SAMPLE TYPE, REFERENCE RANGE, NEGATIVE PREDICTIVE VALUE, AND UNITS

MICHAEL J. SANFELIPPO, MS, MT(ASCP) AND DORIS L. SCHERR, MT(ASCP)

Changes to the D-dimer test method will occur on January 24, 2013, for testing performed at the Marshfield Center campus and on January 30 for testing performed at the DTC, Eau Claire, Flambeau Hospital, Minocqua and Wausau centers.

The present method, Triage®, is being replaced with a different method, Innovance® from Siemens. This change was necessitated by restricted availability of the Triage reagents and the need for a more sensitive method.

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The new method has a negative predictability of 100% for deep venous thrombosis (DVT) and 99% for pulmonary embolus (PE). The specificity for DVT is 34.5% and for PE is 39.6 %.

The reference range is 0.19 to 0.49 mg/L of fibrinogen equivalent units (FEU). A value of less than 0.50 mg/L FEU indicates a very low probability of either a DVT or PE being present. A value of 0.50 mg/L FEU or greater suggests the possibility of a thrombotic event such as a PE or DVT. The diagnosis of a thrombotic event must be established based on the medical history, clinical presentation, and additional studies. An elevated D-dimer alone is not diagnostic for a thrombotic event.

The specimen requirement for this new method is **platelet poor citrated plasma** (blue top tube), which is different than the EDTA specimen (lavender top tube) for the Triage ® method.

Specimen Requirements
1.0 mL platelet poor citrated plasma

Minimum Volume
0.6 mL platelet poor citrated plasma

Storage
Freeze plasma if testing will not be performed within 4 hours.

The D-dimer is a unique peptide that forms when cross-linked fibrin is digested by plasmin, the proteolytic enzyme of the fibrinolytic system. There is always a small amount of this peptide present since there is always a low level of coagulation activation in the vasculature. In conditions leading up to the development of pathological clot formation, as seen in deep venous thrombosis or pulmonary embolus, there is an increased level of coagulation activation with a subsequent increase in production of the D-dimer. The measurement of the D-dimer can be used to rule out the presence of pathological clot formation. A low level of D-dimer would suggest against the development of a pathological clot. An abnormal (elevated) level however is not diagnostic for either deep venous thrombosis or pulmonary embolus. Elevated levels are seen in patients following surgical procedures, patients with liver disease, during pregnancy, patients with malignancies, DIC, sepsis, and in most patients over 80 years of age.

Please address questions or concerns regarding this test to:

Michael J. Sanfelippo, MS, MT(ASCP) at 715-221-6320
Technical Director of Coagulation Services

Doris Scherr, MT(ASCP) at 715-221-6335
Hematology Technical Manager

REFERENCES

Harper PL, et al., *D-dimer concentration increases with age reducing the clinical value of the D-dimer assay in the elderly*. Intern Med J 2007, 37:607:13.