

# Laboratory Lines

News from Florida Hospital Clinical Laboratories and Florida Pathology Lab (FPL)



## TROPONIN-I NORMAL CUT OFF CHANGE FOR BECKMAN ANALYZERS

The Laboratories at Florida Hospital will begin using the **cut-off of 0.06 ng / mg effective January 12, 2010** for the troponin I assays performed on the Beckman Analyzers in the central laboratories. The range of normal for troponin I will be listed as 0.0 - 0.06 ng / ml on laboratory reports beginning on that date. This will increase the sensitivity of the Beckman assay since the previous cut-off was at a higher level of 0.5 ng / ml. This new Beckman cut-off will also match the sensitivity of the Point-of-Care troponin assays performed on the i-STAT® and should decrease discrepant results between the assays.

This normal range will change only for those tests performed in the central laboratory on the Beckman Analyzers. The Point-of-Care troponin I testing cut-off on the i-STAT® will not change and continues to be < 0.1.

The American College of Cardiology and the European Society of Cardiology have recommended that the cut-off for the diagnosis of myocardial damage be set at the 99<sup>th</sup> percentile (mean + 3 SD) or the level at which the troponin I assay achieves a 10% coefficient of variation (CV) if that level is higher than the 99<sup>th</sup> percentile. In studies using the Beckman Analyzer, it was determined that the 99<sup>th</sup> percentile cut-off and 10% CV level were 0.04 ng / ml and 0.06 ng / ml respectively. Based on this information the cut-off value above which the troponin I result is considered abnormal has been changed to 0.06 ng / ml from the previous cut-off of 0.5 ng / ml. The previous cut-off was based on the value at which the sensitivity of the troponin I level was equivalent to that of an abnormal CKMB level and this is no longer recommended. The i-STAT® cut-off level is also set at the 10% CV level.

If there are any questions or concerns, please call Susan White, Chemistry Manager at Orlando, 407-303-5600 ext 1104909.

## NEW TESTS FROM THE SURGICAL LABORATORY AT FLORIDA HOSPITAL ORLANDO

The clinical laboratory will begin offering three new tests, the VerifyNow P2Y12 Assay, Aspirin Assay and IIb/IIIa Assay. The P2Y12 Assay measures the level of platelet P2Y12 receptor blockade in patients treated with drugs in the thienopyridine class, including clopidogrel (Plavix). The Aspirin Assay is a qualitative assay to aid in the detection of platelet dysfunction due to the ingestion of Aspirin. The IIa/IIIb Assay is a semi-quantitative assay used to measure glycoprotein IIa/IIIb receptor blockade in patients treated with abciximab or eptifibatid. These tests can be ordered via laboratory test codes PFPLV, PFASP AND PFIIB. Testing is usually completed within 30 minutes of receipt of specimen. For more information please contact Herald Waldon, POCT Manager, at 407-303-1594.

## EMERGENCY RELEASE OF UNCROSSMATCHED BLOOD: PROCEDURE UPDATE

On rare occasions a physician may determine that the patient's clinical situation is life threatening and requires emergency release of blood before completion of compatibility testing. Only the patient's physician can make this decision and the Transfusion Service will act according to the request. Recent changes have been made to the process to better protect the safety of our patients. The changes include:

Emergency Release blood may be obtained through delivery of a Blood Product Pickup Slip. It is no longer necessary to have an RN or physician sign the Transfusion Report form. Responsible physicians will document the need for emergency release blood on the patient's chart. This can be done by signing the Emergency Release documentation form in the order section of patient's chart. An electronic order will be made available to physicians utilizing CPOE to facilitate the documentation process. For further information contact the Transfusion Service at 407-303-1522.

### SEMEN ANALYSIS

Much interest has been shown by some caregivers as to the procedure and interpretation of the Semen Analysis that is performed at Florida Hospital. This laboratory procedure includes both Semen Motility and Semen Morphology.

**Semen Motility** is evaluated immediately upon receiving the sample in the laboratory. A minimum of 200 spermatozoa are classified according to **World Health Organization (WHO)** standards for semen motility. These classifications are:

- 4+ rapid progressive motility ( $\geq 20\mu\text{m}/\text{sec}$ , which is approximately equal to five head lengths or a half a tail length)
- 3+ is slow or sluggish progressive motility
- 2+ is non-progressive motility ( $< 5\mu\text{m}/\text{sec}$ )
- 1+ is immotile

*A percentage for each classification of motility is reported. The normal range for this parameter is 50% or more with sluggish and rapid progressive motility (3+/4+) or >25% with rapid progressive motility (4+).*

**Semen Morphology** is determined by assessing a Wright stained smear. 200 sperm are examined and classified as either normal or abnormal using the Strict Criteria for morphology. These results are reported as a percentage.

1. NORMAL SPERMATOZOA
2. ABNORMAL SPERMATOZOA
  - a. Head Defects,
  - b. Neck and midpiece defects
  - c. Tail defects

The reference range for this test states as sperm morphology falls below 15% normal forms, the fertilization rate in vitro decreases. For more information please contact Margaret Bartlett, Hematology Manager, at 407-303-5600, ext. 1104967.

### HEMATOLOGY TESTING OPTIONS FOR EVALUATION OF PERIPHERAL BLOOD SMEARS

There are two ordering options for the evaluation of peripheral blood smears that can be utilized when determining the type of information needed to help with the care of the patient.

**HEMGPD**- This test should be ordered when a differential is required. The differential is reported in one of two ways:

**AUTOMATED**- This differential is measured by the Hematology analyzer. The analyzer reviews 8000 WBCs by flow cytometry. When the differential is reported from the method, a manual peripheral smear is not prepared.

**MANUAL**- This differential is performed utilizing the peripheral smear. A laboratory technologist classifies 100 WBCs seen on the slide. Included with this result is any abnormal RBC morphology, such as schistocytes, spherocytes, sickle cells, and abnormal platelet morphology, such as giant or large platelets.

**PATHSM**- A pathology smear review should be requested when the physician would prefer a pathologist review of the peripheral smear and receive a written report of their findings.

If an ordering physician would like to review a slide please contact the laboratory and a slide will be prepared. There is no formal ordering procedure. If you have any additional questions please contact Maria Brock, Interim Hematology Manager at Orlando, 407-303-5600 ext. 1103147.

### PROCALCITONIN – A MARKER FOR SEPSIS

Procalcitonin (PCT) is a relatively new test that can be useful in the early evaluation of patients at risk for developing sepsis. PCT can differentiate between bacterial infection and other causes of inflammatory reactions. Serum levels correspond to the severity of infection and response to treatment. Identifying patients with bacterial infection and sepsis is a major challenge in the Emergency Department and critical care units, where mortality from sepsis remains high due to delayed diagnosis and treatment. The traditional clinical signs for infection and routine laboratory tests used to diagnose bacterial infection and sepsis (CRP, WBC, or lactate) lack diagnostic accuracy and can be misleading.

PCT levels rise within 6-12 hours of bacterial infection. Normal concentrations in healthy individuals is  $< 0.1 \text{ ng/ml}$ . PCT levels  $> 2.0 \text{ ng/ml}$  on the first day of admission indicate a high risk of progression to severe sepsis and septic shock. The laboratory at Orlando is studying the feasibility of bringing this test in-house. Currently any requests for Procalcitonin are sent to Orlando Regional Medical Center with a good turn-around time for results. For any questions, please call Susan White, Chemistry Manager at Orlando, 407-303-5600 ext 1104909.