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MEMORANDUM # 84

TO: UNC Hospitals Attending Physicians, Housestaff, Department Heads, Nursing Coordinators, Supervisors, Inpatient Pharmacy Services, and Core Laboratory Staff

FROM: Catherine Hammett-Stabler, PhD, Director, Core Laboratory
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DATE: July 31, 2009

SUBJECT: Change in Core Laboratory Chemistry Instrumentation and Selected Reference Ranges.

Over the next two weeks, the Core Laboratory will implement a major upgrade of the instrumentation currently used to perform most clinical chemistry tests. This major transition is necessitated by the ageing of the current instruments and represents a tremendous amount of work by the Core Laboratory staff. The introduction of the new analytic systems and shut-down of the old systems will take place in stages beginning July 29, 2009 to minimize impact on patient care.

The methods will not change for most of the tests involved and in-house studies have determined that this change will not affect current reference ranges for those tests.

Troponin and **aldolase** are the two exceptions.

Conversion to Troponin I (TnI) – the Troponin I (Ortho Clinical Diagnostics) assay will replace the Troponin T (Roche Diagnostics) assay for detecting myocardial injury. Over the past week the Troponin I results have been reported, at no charge to patients, with the Troponin T results to facilitate the transition.

The Troponin I detected by this new method is specific to myocardium and does NOT cross react with the skeletal muscle Troponin I isotypes. The assay also has greater analytical sensitivity compared to the Roche Troponin T assay which should enable earlier detection of myocardial injury.

Detectable levels of Troponin I are seen within 4-6 hours following an acute myocardial infarction (AMI) and follow a pattern similar to Troponin T remaining elevated for 7-14 days. Because Troponin I reflects myocardial cell damage, conditions other than AMI will result in increases in TnI concentrations. Such include sepsis, congestive heart failure, hypertension with

left ventricular hypertrophy, hemodynamic compromise, myocarditis, mechanical injury including surgery, defibrillation, and cardiac toxins. This means we expect to see low levels in patients who have had myocardial injury but not necessarily an AMI. For AMI, one should look for increasing concentrations across serial samples. For those patients with low or stable levels, remember that TnI has long been shown to be a good risk assessment marker for evaluating patients with unstable angina and acute coronary syndrome.
Conversion formulae cannot be used to convert TnT to TnI because of the unique release characteristics and complicated metabolism of each. TnT does not equal TnI.
Reference range: 0-0.034 ng/mL. The 99th percentile upper reference limit is 0.034 ng/mL.

Aldolase – the new reference ranges for Aldolase are 10-24 months: 3.4-11.8 U/L, 25 months – 16 y: 1.2-8.8 U/L; 17 y – adults: <5.5 U/L.

Revised reference ranges of the affected tests will automatically appear in the http://labs.unchealthcare.org/.
Please contact the Core Laboratory Supervisor or Attending Director (6-2361) for questions concerning these changes.