



Capital Health

## MEMORANDUM

**To:** Capital Health Inpatient, Emergency and Outpatient Clinics, Physicians, Health Service Managers, Nurse Practitioners

**From:** Dr. Amy Lou, Dr. Manal Elnenaei, Dr. Bassam Nassar and Ms. Cindy Andrews  
Division of Clinical Chemistry

**Date:** October 14, 2014

**Subject:** **Changes in Phenytoin Testing**

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Please be advised that phenytoin analysis by High Performance Liquid Chromatography (HPLC) has been replaced by a new method using automated analyzers.

Both methods measure Total Phenytoin, a good reflection of the body status of the drug in most patients. However, in renal failure or where there is concurrent administration of Valproic acid, both of which reduce serum protein binding of phenytoin, the “free phenytoin” level may need to be measured. A method to measure “free phenytoin” is under development but at this time, samples will have to be referred out. The expected turn-around time may be up to two-weeks and the cost is \$40 per sample. Therefore, referral will require approval of the Clinical Chemistry Medical Staff prior to processing.

Since phenytoin is 90% albumin-bound, if the albumin level is abnormal, the phenytoin concentration should be adjusted according to the following formula:

$$\text{Corrected Phenytoin} = \frac{\text{Measured Phenytoin}}{0.9 (\text{albumin}/40) + 0.1}$$

If you have any questions, please contact Dr. Amy Lou at 902-473-1528 or Dr. Bassam Nassar at 902-473-2225.

CC. Ms. Shauna Thompson, Dr. Godfrey Heathcote, Mr. Eugene Smith, Ms. Sandy Schlay, Ms. Faye Lively