

THREE DIMENSIONAL GRAPHICAL REPRESENTATIONS OF PHOSPHATE DELTA CHECK LIMITS

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We have generated unique graphical summaries of large delta check databases for both inpatients and outpatients. These three dimensional graphs show frequency histograms of differences (deltas) between sequential inpatient test pairs with the z axis representing frequency, y axis representing the delta and the x representing the time interval (days) between observations (Clin Chem 51 (S6):A85). The maximum time interval was 28 days. From a database of 80 322 phosphate observations, we produced five different figures representing phosphate deltas in four hospitals and a referral laboratory. **Results:** The table summarizes the 99% delta check limits for the different laboratory environments at different time intervals. There is asymmetry in the delta check limits which precludes the use of a single delta. The university and tertiary care hospital have the broadest delta limits. The delta check limits tend to decrease over time with the exception of university hospital and the referral laboratory. The large negative deltas arise primarily from renal patients who have undergone dialysis. Our delta check limits are broader than those found in the literature. **Conclusions:** To be optimal, phosphate delta check limits should be customized to the clinical setting with broader deltas used in tertiary care hospitals. Adjustment of the phosphate delta checking limit for increasing time interval may not be required as the limits tend to decrease over time. Based on our findings we recommend ± 1.0 mmol/L, for a tertiary care hospital, ± 1.3 mmol/L.