

00183 **Benchtop Beckman Coulter DxH500: an Evaluation Against LH750 and Sysmex XN-350**

Chua Su Ling, Ong Sin Wei, Loh Soo Ling, Koh Ming Qing Beatrice, Ng Wai Yoong, Yeo Chin Pin

Singapore General Hospital

Aims: Blood cell analysis at the primary care setting has an important role in disease surveillance as a first contact point for haematological assessment. While 3-part white blood cell (WBC) differentials (LYMPH, MONO, GRANU) are widely in use, 5-part WBCs give better insights. The Beckman Coulter DxH500 is evaluated for performance with its larger LH750 analyser and also another benchtop analyser – the Sysmex XN-350 (XN-L series).

Methodology: Evaluations of imprecision, linearity of measurement and carry-over were performed. Routine patient specimens (on LH750; n=114) were further tested by DxH500 and also evaluated the same day on XN-350. Data analyses include regression fits, imprecision claimed limits and also concordance of blood count parameters by LH750 and XN-350.

Result: Imprecision data were mostly <5.0% (intra, total CV) – WBC: 0.8-2.3%, RBC: 0.7-1.6%, PLT: 2.0-10.8%, HCT: 0.7-1.8%, HGB: 0.5-1.3%. Linearity was demonstrated without carry-over effects with this 'open tube' mode. Matched against LH750, DxH500 was reasonable with Altman-Bland bias 0.9-2.5% (platelets at 15.2%) and Passing-Bablok regression fits of slopes 0.99 – 1.02, intercepts of -0.03 – 23.4 and correlations 0.954-0.997 (by Spearman's coefficients) for the parameters WBC, RBC, PLT, HCT and HGB. Differential WBC comparisons (LYMPH, MONO, NEUT, EO, BASO) also had good concordance with the bigger instrument. With a 270 x 430 mm footprint, the DxH500 fits a typical bench of 700 mm depth. Compared to XN-350, differences were seen occasionally. Overall, DxH500 compared equally well between the LH750 and XN-350 for the parameters WBC, RBC, PLT, HCT, HGB with highest variation seen for platelet counts.

Conclusion: The DxH500 gives good performance characteristics in this study, as compared to the larger LH750. With similar core measurement principles, the DxH500 brings to the bench top, equivalent measurements seen with the central laboratory's instrument.