An evaluation of the Yumizen H500 FBC analyser for near-patient testing with oncology patients

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Introduction

The Spire Bushey laboratory currently processes FBC samples from the Elstree Cancer Centre and Spire Harpenden Oncology Centre prior to planned chemotherapy
The possibility of increasing the amount of near patient testing could avoid delays and streamline the patient pathway.
Because of their chemotherapy treatment, samples may be abnormal, having low counts and atypical blood cells. It is therefore important that the use of near patient testing does not compromise the quality of the results obtained.

Instrumentation

The Yumizen H500 is a new, compact FBC instrument (HORIBA Medical) with only three reagents and designed for ease of use.
It offers a 5-population WBC differential plus a measurement of immature cells.

The instrument has password entry ID, touch-screen software and a full range of logs for audit purposes

Methods

Routinely taken Full Blood Count samples (K2EDTA) from oncology patients received at the laboratory were tested using the Pentra DX Nexus analyser in the main laboratory before repeating using the Yumizen H500 analyser.

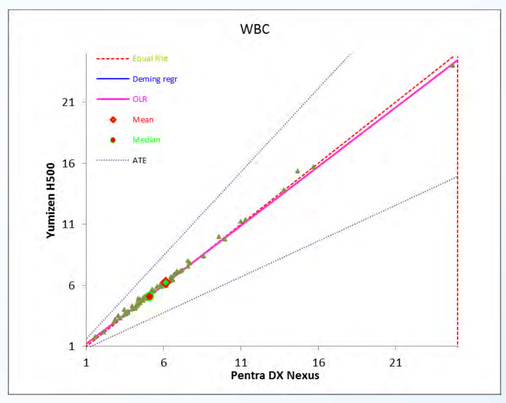
The study was conducted August to September 2017
61 data sets were obtained.
The data obtained was statistically analysed to assess correlation. The instrument was also assessed for usability and adherence to the requirements of the ISO15189 standard.

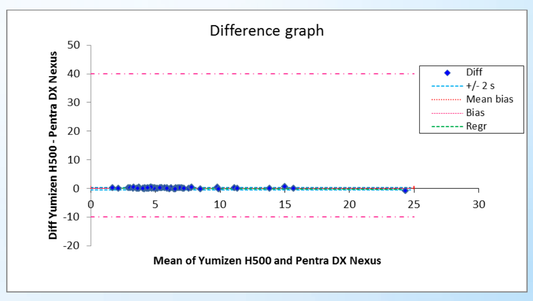
Results

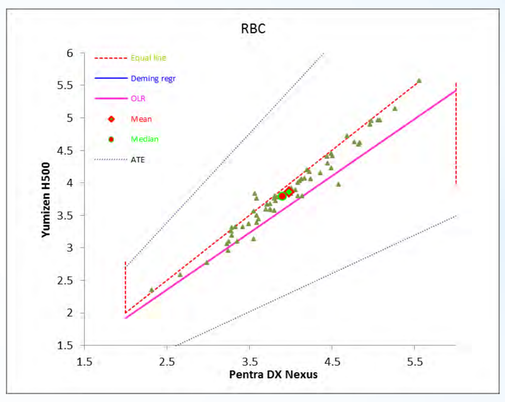
The results gathered showed excellent correlation between the two instruments

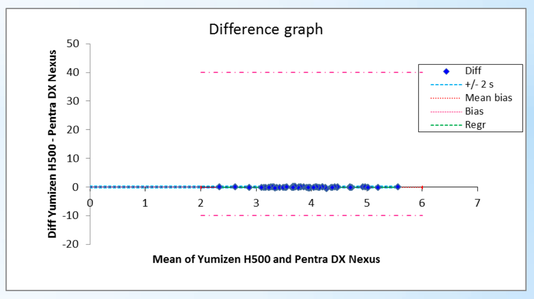
RBC had a correlation coefficient (r) of **0.98**
Haemoglobin had a correlation coefficient (r) of **0.99**
Platelets had a correlation coefficient (r) of **0.98**
MCV had a correlation coefficient (r) of **0.98**
WBC had a correlation coefficient (r) of **0.99**
Neutrophils had a correlation coefficient (r) of **0.99**
Lymphocytes had a correlation coefficient of (r) of **0.96**

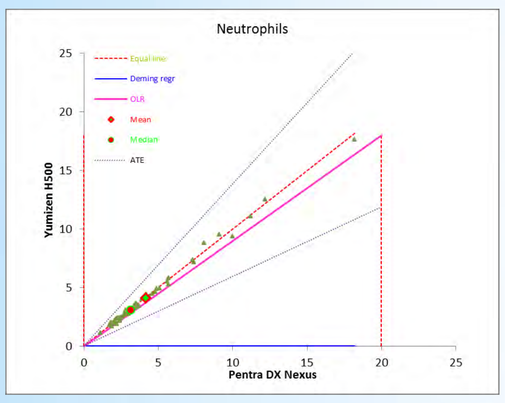
The Yumizen H500 took about 1 minute to process each sample. It gave clear instructions on the screen on how to process a sample and prompts the user to mix the sample which will be useful to nurses. The quickness of analysing each sample will ensure that patients' treatments are not delayed.

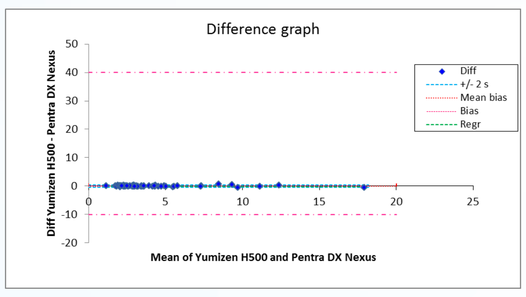


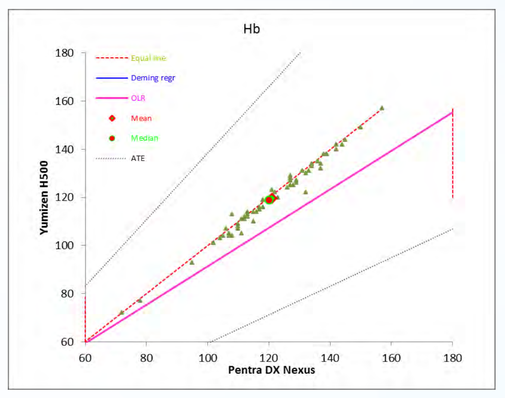


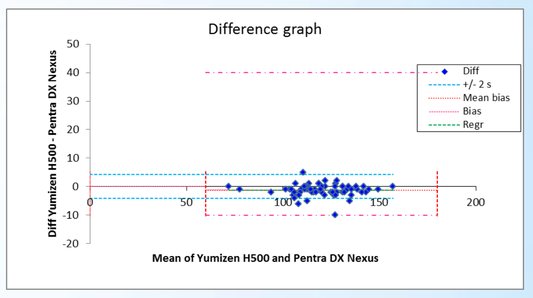


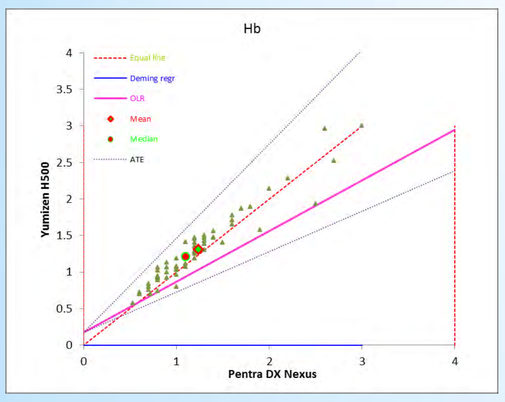


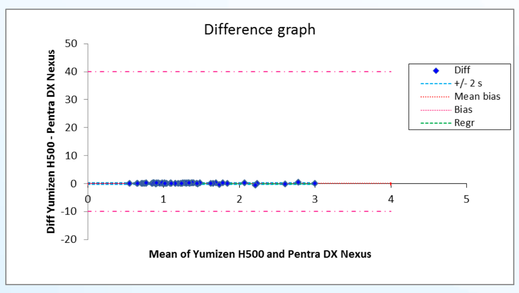


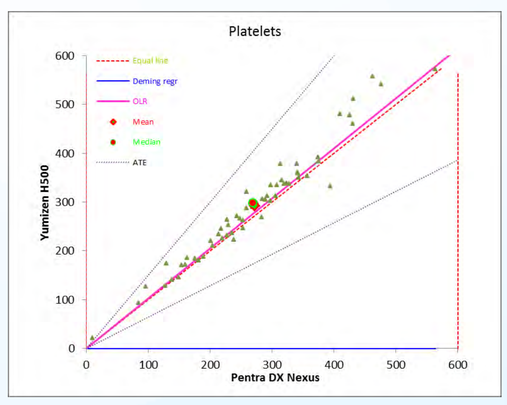


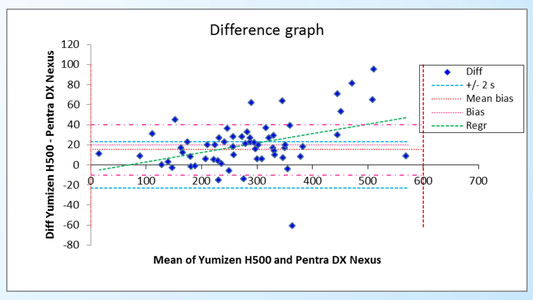












Conclusions

Horiba Yumizen H500 has excellent correlation with the Horiba Pentra DX Nexus. The functions of the analyser mean that the analyser would adhere to ISO standards 15189. The Yumizen H500 used the same internal quality controls as the Horiba Pentra DX Nexus. There was no problem with running the controls and the levy-jennings plots were very clear. The analyser can be registered for EQA.
The software was user friendly .The reagent log is easy to update and keeps an accurate count of how much reagent is on board.
The Yumizen H500 took about 1 minute to process each sample. It gave clear instructions on the screen on how to process a sample and prompts the user to mix the sample which will be useful to nurses. The quickness of analysing each sample will ensure that patients' treatments are not delayed with quality not jeopardised.