EVALUATION OF THE ANALYTICAL PERFORMANCE OF THE NEW BECKMAN COULTER DxC 700 AU CLINICAL CHEMISTRY SYSTEM

J. Reynolds, B Godber, K.L Breasley, S O’Mahony, D. Fitzgerald, H.Kelly
Beckman Coulter, Co Clare, Ireland

BACKGROUND

The Beckman Coulter DxC 700 AU clinical chemistry analyzer is the latest system from Beckman Coulter. It is a fully automated, random access analyzer, designed for medium to high throughput laboratories, with a throughput of 1200 tests/hour including ion selective electrodes. The purpose of this study was to evaluate the analytical performance of the new DxC 700 AU analyzer and to compare the performance against the current AU680 and AU8000 analyzers.

METHODS

General: To assess the performance of the DxC 700 AU, Beckman Coulter assays were selected for evaluation that covered a range of sample types and assay methodologies. Table 1 shows the Beckman Coulter AU products chosen for the evaluation.

Table 2: Summary of Precision for a representative selection of analytes on the Beckman Coulter DxC 700 AU Clinical Chemistry System.

RESULTS

Precision: Estimates of repeatability and within laboratory precision were assessed at multiple analyte concentrations. The data from 2 concentrations summarized in Tables 2 & 3 demonstrates that the new DxC 700 AU produces reliable results.

Table 3: Summary of Precision for Ion Selective Electrodes on the Beckman Coulter DxC 700 AU Clinical Chemistry System.

Linearity: The linearity of the assay response throughout the measuring range was assessed on the DxC 700 AU. All assays were shown to be linear over the respective assay’s analytical range as shown in table 6.

Method Comparison: The DxC 700 AU was compared to the current AU680 and AU8000 analyzers using the method in CLSI guideline EP09-A3. The experimental design utilized duplicate sample analysis, twice daily, over the course of 20 working days (n=80) for multiple samples that covered the range of the assay. For brevity the data from 2 most clinically relevant concentrations of analyte are shown.

Method Comparison: The DxC 700 AU was compared to the current AU680 and AU8000 analyzers by running patient samples using the representative panel of assays.

Figure 1: Summary of the Within Laboratory Precision for all representative assays on the Beckman Coulter DxC 700 AU Clinical Chemistry System.

Figure 2: Method Comparison Plots comparing Urea (a & b) and Glucose (c & d). Bias plots for Urea and Glucose comparing the DxC 700 AU and the AU680 are shown (a & f).

CONCLUSION

The results of the study demonstrated excellent analytical performance of the new Beckman Coulter DxC 700 AU analyzer and confirms comparable performance to the AU680 and AU8000 analyzers.

Beckman Coulter, 2016