



# QUALITY CONTROL SOLUTION FOR INTEGRATED HEMATOLOGY LABORATORY NETWORK

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## BACKGROUND

Immediate access to quality control data is one key factor within a laboratory's quality control plan. Access to quality control data over a multi-site, multi-system network is also critical to ensure all systems within the network are reporting accurate and consistent results.

To address the quality control requirements of high-volume, integrated hematology laboratories, Beckman Coulter developed DxONE Insights, a cloud-based analytics application that provides aggregated data from connected systems across a hospital network via RMS (Remote Monitoring System), which enables the connectivity of the systems.

## METHODS

Using DxH 800 hematology systems connected to RMS and a single sign on, the designated hematology quality assurance lead (HQAL) accessed the DxONE Insights dashboard.

By selecting the systems from all sites across the network, the control type, parameter, reagents and specific lot number of controls, the HQAL could see, overlay and drill into control recovery data to efficiently identify, investigate and troubleshoot quality control data that may be indicative of a system issue.

Examples of issues include wrong samples, recovery shifts, lot-to-lot variation and high-level trends within or across systems.

Data from six pilot sites worldwide was used for simulation testing.

## RESULTS

Quality control data as well as lot numbers of reagents, calibrators and system data were collated within DxONE Insights. DxH 800 quality control data by CBC and Differential parameters was collated and posted for review at the respective DxH quality control tabs.

The graphic review of the hematology control recovery in DxONE Insights provided a detailed review over multiple levels and lots. The results below capture the ability to view lot-to-lot crossover data within a single laboratory with multiple systems (Figure 1), and to show discrepant control recovery values outside the acceptable ranges and those from similar systems within the network (Figure 2-4).

The results in Figure 1 capture the difference in RBC recovery during the lot-to-lot crossover study for Level 1 RBC. The difference in the recovery observed between the lots was noted and reported. All values observed were within the expected ranges as listed on the Table of Expected Results for each lot.

Figures 2-4 demonstrate the ability of DxONE Insights to identify individual values by lot number, level, time of analysis and site. Figure 2 identifies a discrepant result from the group, Figure 3 the actual result obtained and Figure 4 the repeat of the control. In this case, the control was repeated with acceptable results obtained.

Also noted, but not included here, was the ability of ProService to access system data and provide information back to technical support. This connection provided the ability to identify and troubleshoot system issues proactively in a highly effective manner, alleviating downtime and ensuring quality of results.

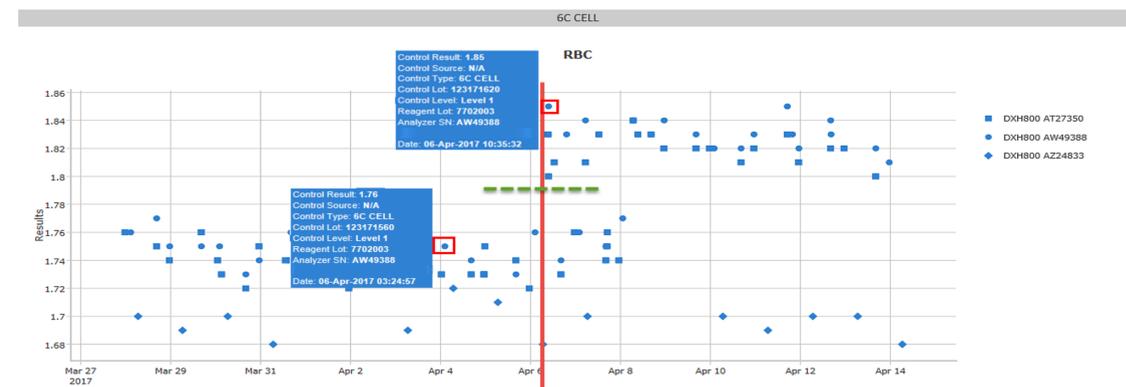


Figure 1. Illustrates the ability to view parameter-specific results for all systems within a network. The RBC values above capture the lot-to-lot difference observed during a crossover study with a new lot.

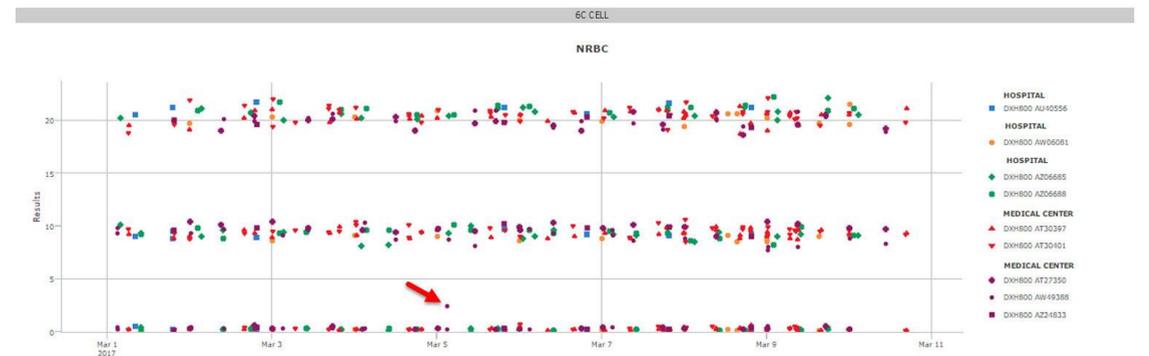


Figure 2. Illustrates the ability to see multiple systems from the network. The value identified by the arrow required further investigation.

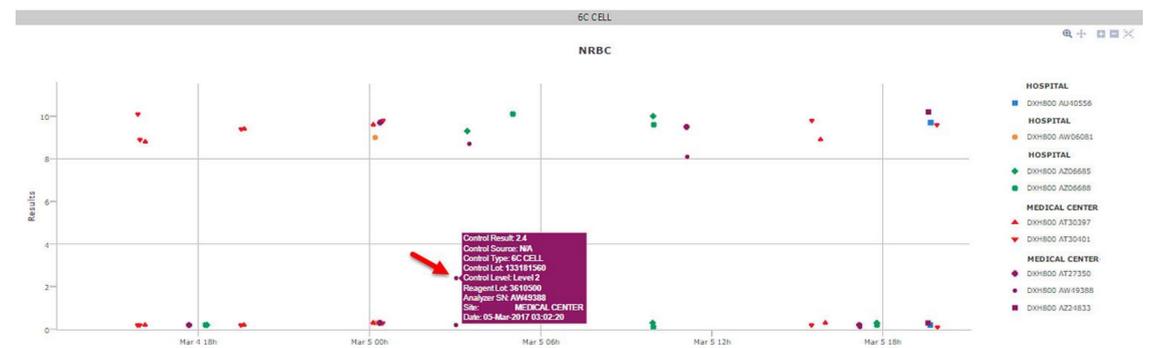


Figure 3. Illustrates the ability to identify the discrepant result by control type, lot number, level, reagent lot number, system, location and time and date.

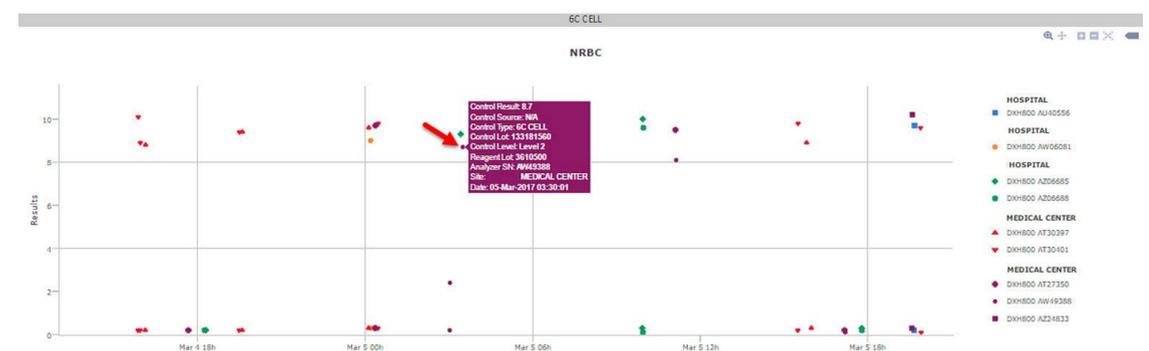


Figure 4. Illustrates the ability to identify the repeated result by control type, lot number, level, reagent lot number, system, location and time and date, thus confirming acceptable recovery.

## CONCLUSION

The ability to access quality control data and related system data from across the multi-system network from a single dashboard increased efficiency, reduced downtime and aided in the assurance of reporting quality results within an integrated network of hematology systems.