

**UniCel DxH Series with  
System Manager Software**

Coulter Cellular Analysis System



B26673AC  
July 2015

Manufactured by  
Beckman Coulter, Inc.  
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Brea, CA 92821 U.S.A.



**UniCel DxH Series with System Manager Software  
Research Use Only Addendum**  
PN B26673AC (July 2015)

UniCel DxH Series with System Manager Software includes the following instruments as individual or workcell (connected) systems:

- UniCel DxH 800 Coulter Cellular Analysis System
- UniCel DxH Slidemaker Stainer Coulter Cellular Analysis System

and the following instrument as an individual system:

- UniCel DxH 600 Coulter Cellular Analysis System

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Rx Only

Original Instructions

# Revision History

## **Initial Issue AA, 5/2013**

DxH Connectivity Software Version 3.0

## **Issue AB, 8/2014**

DxH Connectivity Software Version 3.0.1.0

DxH 600 Software Version 1.1.0.0

The following sections were modified:

- [How to Use Your UniCel DxH Manuals](#) in the Introduction
- [Research Use Only Parameters](#) in CHAPTER 1, DxH Research Use Only Parameters
- [Cell Population Data](#) in CHAPTER 1, DxH Research Use Only Parameters
- [Activate RUO and CPD Parameters](#) in CHAPTER 2, Enabling Research Use Only Parameters
- [CPD](#) in CHAPTER 3, Reporting, LIS Transmission, and Exporting
- [Export](#) in CHAPTER 3, Reporting, LIS Transmission, and Exporting

## **Issue AC, 7/2015**

DxH Connectivity Software Version 3.1

DxH 600 Software Version 1.2

**Note:** Changes that are part of the most recent revision are indicated by a change bar in the left margin of the page.

The following section was modified:

- Software version information removed from the copyright page (following the cover page). It is on this Revision History page.

*This document applies to the latest software listed and higher versions. When a subsequent software version affects the information in this document, a new issue will be released to the Beckman Coulter Web site. For labeling updates, go to [www.beckmancoulter.com](http://www.beckmancoulter.com) and download the latest version of the manual or system help for your instrument.*



# Safety Notice

Read all product manuals and consult with Beckman Coulter-trained personnel before attempting to operate instrument. Do not attempt to perform any procedure before carefully reading all instructions. Always follow product labeling and manufacturer's recommendations. If in doubt as to how to proceed in any situation, contact your Beckman Coulter Representative.

Beckman Coulter, Inc. urges its customers to comply with all national health and safety standards such as the use of barrier protection. This may include, but is not limited to, protective eyewear, gloves, and suitable laboratory attire when operating or maintaining this or any other automated laboratory analyzer.

## Alerts for Warning and Caution

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### **WARNING**

**WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. May be used to indicate the possibility of erroneous data that could result in an incorrect diagnosis (does not apply to all products).

### **CAUTION**

**CAUTION** indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. May be used to indicate the possibility of erroneous data that could result in an incorrect diagnosis (does not apply to all products).

 **WARNING**

Risk of operator injury if:

- All doors covers and panels are not closed and secured in place prior to and during instrument operation.
- The integrity of safety interlocks and sensors is compromised.
- Instrument alarms and error messages are not acknowledged and acted upon.
- You contact moving parts.
- You mishandle broken parts.
- Doors, covers and panels are not opened, closed, removed and/or replaced with care.
- Improper tools are used for troubleshooting.

 **WARNING**

To avoid injury:

- Keep doors, covers and panels closed and secured in place while the instrument is in use.
- Take full advantage of the safety features of the instrument.
- Acknowledge and act upon instrument alarms and error messages.
- Keep away from moving parts.
- Report any broken parts to your Beckman Coulter Representative.
- Open/remove and close/replace doors, covers and panels with care.
- Use the proper tools when troubleshooting.

 **CAUTION**

System integrity could be compromised and operational failures could occur if:

- This equipment is used in a manner other than specified. Operate the instrument as instructed in the product manuals.
- You introduce software that is not authorized by Beckman Coulter into your computer. Only operate your system's software with software authorized by Beckman Coulter.
- You install software that is not an original copyrighted version. Only use software that is an original copyrighted version to prevent virus contamination.

 **CAUTION**

If you purchased this product from anyone other than Beckman Coulter or an authorized Beckman Coulter distributor, and, it is not presently under a Beckman Coulter service maintenance agreement, Beckman Coulter cannot guarantee that

**the product is fitted with the most current mandatory engineering revisions or that you will receive the most current information bulletins concerning the product. If you purchased this product from a third party and would like further information concerning this topic, call your Beckman Coulter Representative.**





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## Overview

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This chapter contains the following topics:

- [How to Use Your UniCel DxH Manuals](#)
- [About This Manual](#)
- [Conventions](#)
- [System HELP](#)
- [Graphics](#)

## How to Use Your UniCel DxH Manuals

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Use this Research Use Only (RUO) Addendum for a complete description of the Research Use Only Parameters included with your system.

Use the Instructions For Use (IFU) manual to assist you in the day-to-day running of your Specimen Processing Module (SPM) and System Manager. Go through the detailed step-by-step procedures of Daily Checks, Quality Control (QC), running samples, analyzing data, printing reports, and Shutdown. The IFU contains performance, safety and troubleshooting information, error messages, in-depth information on the principles of hematology, information about what your SPM does and the methods it uses, as well as procedures for cleaning the SPM and replacing reagents and components.

Use the Host Transmission Manual to find the information needed to program the transmission interface between the DxH System and your laboratory's host computer.

See [Related Documents](#) in this manual for the contents of each manual and to quickly determine which manual contains the information you need.

## About This Manual

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The information in your Research Use Only Addendum is organized as follows:

**Chapter 1, DxH Research Use Only Parameters**

Contains a description of the DxH Research Use Only Parameters.

**Chapter 2, Enabling Research Use Only Parameters**

Describes how to certify and enable Research Use Only parameters.

**Chapter 3, Reporting, LIS Transmission, and Exporting**

Provides information on how to report, transmit and print Research Use Only parameters.

**Appendix A, Cell Population Data**

Provides screen displays of Diff, NRBC, and Retic Cell Population Data.

## Conventions

This manual uses the following conventions:

- **Bold** font indicates buttons on the System Manager screen.
- *Italic* font indicates screen text displayed by the System Manager.
- The term *select* is used to indicate either one or both of the following actions:
  - to tap or touch with your finger
  - to click with a mouse
- The instructions in this manual are presented at the Lab Administrator level. For detailed instructions regarding other levels of operator access, refer to Appendix C of the Instructions for Use manual.

**IMPORTANT** is used for comments that add value to the step or procedure being performed. Following the advice in the **IMPORTANT** adds benefit to the performance of a piece of equipment or to a process.

**NOTE** is used to call attention to notable information that should be followed during use or maintenance of this equipment.

## System HELP

The DxH instruments have comprehensive System HELP, which includes reference information, and all operating, maintenance and troubleshooting procedures.



Select the **HELP** icon at the top right of any screen on the System Manager to access System Help.

## Graphics

All graphics, including screens and printouts, are for illustration purposes only. The appearance of your screens may differ slightly from the graphics in this document.





# DxH Research Use Only Parameters

## Research Use Only Parameters

Research Use Only (RUO) parameters are identified with the @ symbol.

@ THESE PARAMETERS ARE FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.

There are two categories of RUO parameters. Throughout this manual, parameters in [Table 1.1, Research Use Only Parameters](#) are referred to as RUO. The remaining Research Use Only parameters consist of a subcategory called *Cell Population Data* (CPD), which are grouped together for reporting purposes. See [Cell Population Data](#) in this chapter.

Enabled RUO and CPD parameters can be displayed, printed on laboratory, chartable, and cumulative reports, transmitted to a host, and exported to a .csv file. RUO and CPD parameters can also be used to write Decision Rules to enhance laboratory workflow.

**Table 1.1** Research Use Only Parameters

Parameter	Method	Description (US1 Reporting Format)
@BFM	Coulter Principle	<b>Body Fluid Mononuclear Cell Percent</b> <ul style="list-style-type: none"> <li>Mononuclear cell population (lymph and mononuclear) derived from the TNC histogram</li> <li>Expressed as a percentage</li> </ul>
@BFM#	Calculated	<b>Body Fluid Mononuclear Cell Absolute Count</b> <ul style="list-style-type: none"> <li>@BFM# = [@BFM * corrected TNC]/100</li> <li>Expressed as <math>N \times 10^3</math> cells/mL</li> </ul>
@BFP	Coulter Principle	<b>Body Fluid Polymorphonuclear Cell Percent</b> <ul style="list-style-type: none"> <li>Polymorphonuclear cell population derived from the TNC histogram</li> <li>Expressed as a percentage</li> </ul>
@BFP#	Calculated	<b>Body Fluid Polymorphonuclear Cell Absolute Count</b> <ul style="list-style-type: none"> <li>@BFP# = [@BFP * corrected TNC]/100</li> <li>Expressed as <math>N \times 10^3</math> cells/mL</li> </ul>

**Table 1.1** Research Use Only Parameters (Continued)

Parameter	Method	Description (US1 Reporting Format)
@EGC	Derived from DIFF measurement in VCSn technology	<b>Early Granulated Cell Percent</b> <ul style="list-style-type: none"> <li>Early granulocytes enumerated from the DIFF VCSn technology</li> <li>Expressed as a percentage of total WBC events</li> </ul>
@EGC#	Calculated	<b>Early Granulated Cell Absolute Count</b> <ul style="list-style-type: none"> <li>@EGC# = (@EGC * WBC)/100</li> <li>Expressed as N X 10<sup>3</sup> cells/μL</li> </ul>
@HLR	Derived from RET measurements in VCSn technology	<b>High Light Scatter Reticulocytes Percent</b> <ul style="list-style-type: none"> <li>Percentage of High Light Scatter Retics in Regions 3 -10 of the total RBC events</li> <li>Expressed as a percentage</li> </ul>
@HLR#	Calculated	<b>High Light Scatter Reticulocytes Absolute Count</b> <ul style="list-style-type: none"> <li>@HLR# = (@HLR * RBC)/100</li> <li>Expressed as N X 10<sup>6</sup> cells/μL</li> </ul>
@LHD	Calculated	<b>Low Hemoglobin Density</b> $@LHD = \sqrt{1 - \left( \frac{1}{1 + e^{(d*(q-MCHC))}} \right)} * 100$ <ul style="list-style-type: none"> <li>Where d and Q are constants</li> <li>Uses the corrected MCHC, when appropriate</li> <li>Expressed as a percentage</li> </ul>
@MAF	Calculated	<b>Microcytic Anemia Factor</b> <ul style="list-style-type: none"> <li>@MAF = (HGB * MCV)/100</li> <li>Uses the corrected HGB and/or MCV, when appropriate</li> <li>Expressed without a unit label</li> </ul>
@MSCV	Derived from RET measurements in VCSn technology	<b>Mean Sphered Cell Volume</b> <ul style="list-style-type: none"> <li>Sphered red cells that are cleared of hemoglobin in preparation for Retic measurements</li> <li>Expressed in fL</li> </ul>
@PCT	Calculated	<b>Plateletcrit</b> <ul style="list-style-type: none"> <li>The relative volume of platelets to whole blood</li> <li>Expressed as a percentage</li> </ul>
@PDW	Derived from PLT histogram	<b>Platelet Distribution Width</b> <ul style="list-style-type: none"> <li>The size distribution of the platelet population derived from the PLT histogram</li> <li>Geometric standard deviation multiplied by a scaling factor</li> <li>No reporting unit</li> </ul>
@RDWR	Derived from RET measurements in VCSn technology	<b>Reticulocyte Distribution Width CV</b> <ul style="list-style-type: none"> <li>The size distribution spread of the reticulocyte population</li> <li>Expressed as a coefficient of variation</li> </ul>

**Table 1.1** Research Use Only Parameters (Continued)

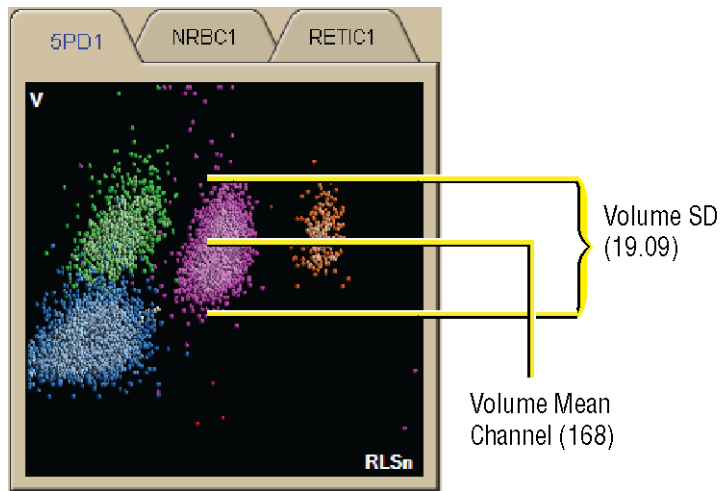
Parameter	Method	Description (US1 Reporting Format)
@RDWR-SD	Derived from RET measurements in VCSn technology	<b>Reticulocyte Distribution Width - SD</b> <ul style="list-style-type: none"> <li>The size distribution spread of the reticulocyte population</li> <li>Expressed as a standard deviation in fL</li> </ul>
@RSF	Calculated	<b>Red Blood Cell Size Factor</b> <ul style="list-style-type: none"> <li>Characterizes the red cell size</li> <li><math>@RSF = \sqrt{MRV * MCV}</math></li> </ul>
@UGC	Derived from RET measurements in VCSn technology	<b>Unghosted Red Cell Percent</b> <ul style="list-style-type: none"> <li>Red cells that are incompletely cleared of hemoglobin enumerated from the RET in VCSn technology</li> <li>Expressed as a percentage of total RBC events</li> </ul>
@UGC#	Derived from RET measurements in VCSn technology	<b>Unghosted Red Cell Absolute Number</b> <ul style="list-style-type: none"> <li>@UGC# = (@UGC * RBC)/100</li> <li>Expressed as N X 10<sup>6</sup> cells/μL</li> </ul>
@UWROP	Derived from RET measurements in VCSn technology	<b>Leukocyte Estimate (Uncorrected) from the RET Optical Channel</b> <ul style="list-style-type: none"> <li>Expressed as N X 10<sup>3</sup> cells/μL</li> </ul>
@WDOP	Derived from DIFF measurements in VCSn technology	<b>Leukocyte Estimate (Corrected) from the DIFF Optical Channel</b> <ul style="list-style-type: none"> <li>Expressed as N X 10<sup>3</sup> cells/μL</li> </ul>
@WNOP	Derived from NRBC measurements in VCSn technology	<b>Leukocyte Estimate (Corrected) from the NRBC Optical Channel</b> <ul style="list-style-type: none"> <li>Expressed as N X 10<sup>3</sup> cells/μL</li> </ul>
@WROP	Derived from RET measurements in VCSn technology	<b>Leukocyte Estimate (Corrected) from the RET Optical Channel</b> <ul style="list-style-type: none"> <li>Expressed as N X 10<sup>3</sup> cells/μL</li> </ul>

## Cell Population Data

Cell Population Data (CPD) is based on 256 channels of histogram data for each VCSn measurement (V, C, MALS, UMALS, LMALS, LALS, AL2) and the standard deviation of each population. See [Figure 1.1, Cell Population Data](#). CPD are often referred to as positional parameters and are provided as additional tools for investigation.

When enabled, CPD is displayed on Additional Data screens (See [Figure A.2, Additional Data Screen - DIFF Tab](#) to [Figure A.4, Additional Data Screen - RETIC Tab](#) in [APPENDIX A, Cell Population Data](#)) and can be printed on laboratory reports, exported to .csv, or transmitted to the LIS.

**Figure 1.1** Cell Population Data



**Table 1.2** Diff Cell Population Data

	Mean Ne	SD Ne	Mean Ly	SD Ly	Mean Mo	SD Mo	Mean Eo	SD Eo	Mean EGC	SD EGC
V	@MN-V-NE	@SD-V-NE	@MN-V-LY	@SD-V-LY	@MN-V-MO	@SD-V-MO	@MN-V-EO	@SD-V-EO	@MN-V-EGC	@SD-V-EGC
C	@MN-C-NE	@SD-C-NE	@MN-C-LY	@SD-C-LY	@MN-C-MO	@SD-C-MO	@MN-C-EO	@SD-C-EO	@MN-C-EGC	@SD-C-EGC
MALS	@MN-MALS-NE	@SD-MALS-NE	@MN-MALS-LY	@SD-MALS-LY	@MN-MALS-MO	@SD-MALS-MO	@MN-MALS-EO	@SD-MALS-EO	@MN-MALS-EGC	@SD-MALS-EGC
UMALS	@MN-UMALS-NE	@SD-UMALS-NE	@MN-UMALS-LY	@SD-UMALS-LY	@MN-UMALS-MO	@SD-UMALS-MO	@MN-UMALS-EO	@SD-UMALS-EO	@MN-UMALS-EGC	@SD-UMALS-EGC
LMALS	@MN-LMALS-NE	@SD-LMALS-NE	@MN-LMALS-LY	@SD-LMALS-LY	@MN-LMALS-MO	@SD-LMALS-MO	@MN-LMALS-EO	@SD-LMALS-EO	@MN-LMALS-EGC	@SD-LMALS-EGC
LALS	@MN-LALS-NE	@SD-LALS-NE	@MN-LALS-LY	@SD-LALS-LY	@MN-LALS-MO	@SD-LALS-MO	@MN-LALS-EO	@SD-LALS-EO	@MN-LALS-EGC	@SD-LALS-EGC
AL2	@MN-AL2-NE	@SD-AL2-NE	@MN-AL2-LY	@SD-AL2-LY	@MN-AL2-MO	@SD-AL2-MO	@MN-AL2-EO	@SD-AL2-EO	@MN-AL2-EGC	@SD-AL2-EGC

**Table 1.3** NRBC Cell Population Data

	Mean NRBC	SD NRBC	Mean Non-NRBC	SD Non-NRBC
V	@MN-V-NRBC	@SD-V-NRBC	@MN-V-NNRBC	@SD-V-NNRBC
C	@MN-C-NRBC	@SD-C-NRBC	@MN-C-NNRBC	@SD-C-NNRBC
MALS	@MN-MALS-NRBC	@SD-MALS-NRBC	@MN-MALS-NNRBC	@SD-MALS-NNRBC
UMALS	@MN-UMALS-NRBC	@SD-UMALS-NRBC	@MN-UMALS-NNRBC	@SD-UMALS-NNRBC
LMALS	@MN-LMALS-NRBC	@SD-LMALS-NRBC	@MN-LMALS-NNRBC	@SD-LMALS-NNRBC
LALS	@MN-LALS-NRBC	@SD-LALS-NRBC	@MN-LALS-NNRBC	@SD-LALS-NNRBC
AL2	@MN-AL2-NRBC	@SD-AL2-NRBC	@MN-AL2-NNRBC	@SD-AL2-NNRBC

**Table 1.4** Retic Cell Population

	Mean Retic	SD Retic	Mean Non-Retic	SD Non-Retic	Mean UGC	SD UGC
V	@MN-V-RET	@SD-V-RET	@MN-V-NRET	@SD-V-NRET	@MN-V-UGC	@SD-V-UGC
C	@MN-C-RET	@SD-C-RET	@MN-C-NRET	@SD-C-NRETC	@MN-C-UGC	@SD-C-UGC
MALS	@MN-MALS-RET	@SD-MALS-RET	@MN-MALS-NRET	@SD-MALS-NRET	@MN-MALS-UGC	@SD-MALS-UGC
UMALS	@MN-UMALS-RET	@SD-UMALS-RET	@MN-UMALS-NRET	@SD-UMALS-NRET	@MN-UMALS-UGC	@SD-UMALS-UGC
LMALS	@MN-LMALS-RET	@SD-LMALS-RET	@MN-LMALS-NRET	@SD-LMALS-NRET	@MN-LMALS-UGC	@SD-LMALS-UGC
LALS	@MN-LALS-RET	@SD-LALS-RET	@MN-LALS-NRET	@SD-LALS-NRET	@MN-LALS-UGC	@SD-LALS-UGC
AL2	@MN-AL2-RET	@SD-AL2-RET	@MN-AL2-NRET	@SD-AL2-NRET	@MN-AL2-UGC	@SD-AL2-UGC



# Enabling Research Use Only Parameters

## Enabling RUO and CPD Parameters

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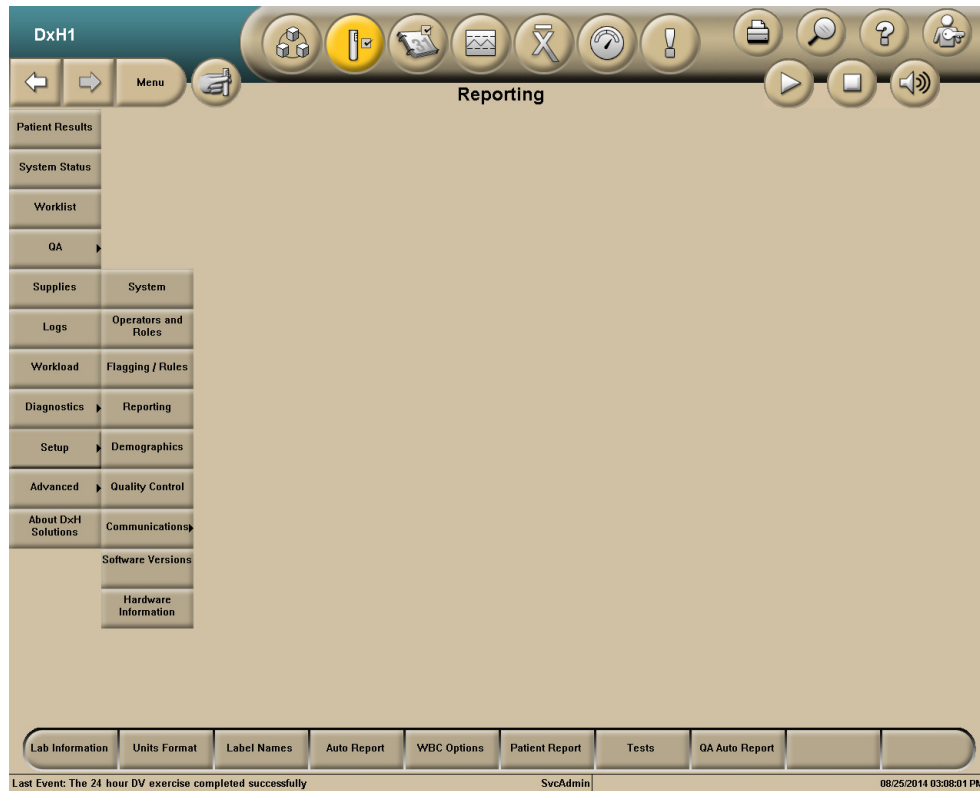
You must log on with an Operator ID with Lab Administrator privileges (Level III) to enable RUO and CPD parameter features.

**NOTE** Once the RUO and CPD parameters are activated (certified), they cannot be deactivated.

- CPD parameters will be displayed on all applicable screens.
- CPD parameters will be printed on the lab report when the **Cell Population Data** check box is selected using **Menu > Setup > Reporting > Patient Report**.
- CPD will transmit to your LIS when the **Cell Population Data** check box is selected using **Menu > Setup > Communications > LIS**.
- RUO parameters will be displayed, printed, and transmitted identically to IVD parameters after being enabled.

## Activate RUO and CPD Parameters

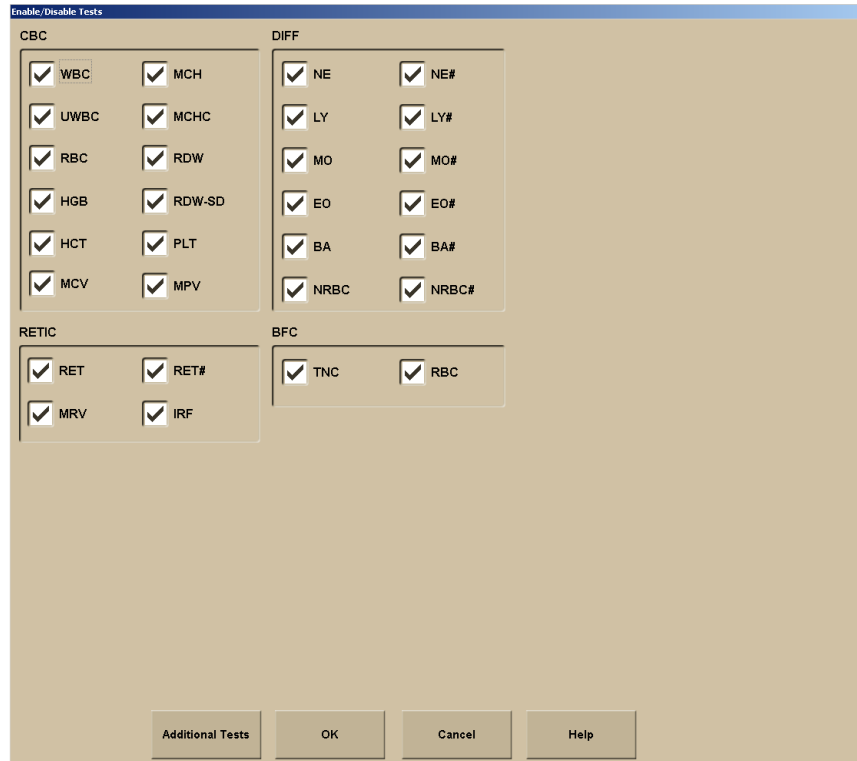
- 1 Select **Menu > Setup > Reporting** to display the Reporting screen.



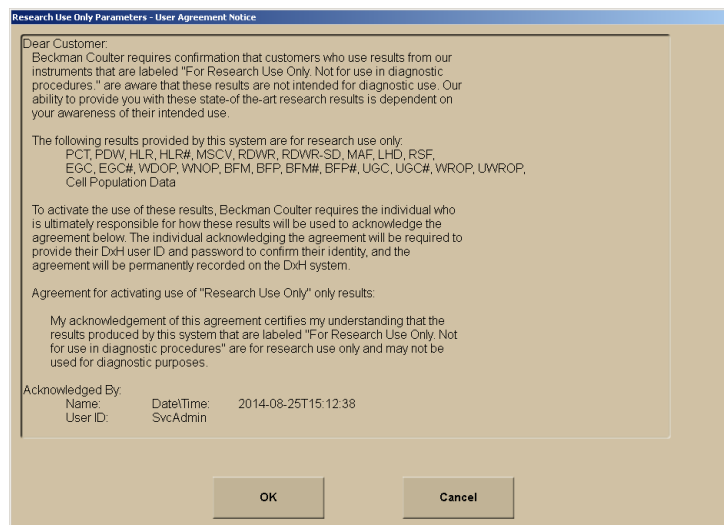
- 2 Select **Tests** from the local navigation bar to display the Enable/Disable Tests dialog box.



3 Select **Additional Tests**.



4 On the Research Use Only Parameters - User Agreement Notice, select **OK** to display the Validate Current User dialog box.



5 On the Validate Current User dialog box, enter your Operator ID and Password, and select **OK**.

**NOTE** RUO and CPD parameters are now activated. CPD parameters will be automatically displayed on the applicable screens.

CPD parameters will automatically populate the Additional Data displays from the Patient Results screens.

The Enable/Disable Tests screen is displayed. CPD parameters will be automatically displayed on the applicable screens.

To enable RUO parameters, go to the next step.

6 Select the RUO parameters from the Enable/Disable Tests screen that you want to enable (displayed, printed, and transmitted) and select **OK**.

**NOTE** Once RUO and CPD certification is enabled, it cannot be disabled. Parameter results can be excluded from the screens (except CPD), printouts, and transmissions.

Select the **RUO Agreement** button to reprint the RUO User Agreement Notice, as needed.

## Screen Displays

### RUO

You can view patient results on one of three different screen formats:

- IVD - see [Figure 2.1, Screen Display - Patient Results - IVD](#)
- RUO - see [Figure 2.2, Screen Display - Patient Results - RUO](#)
- Both - see [Figure 2.3, Screen Display - Patient Results - Both](#)

When enabled, RUO parameters appear on the RUO and Both screen displays.

Graphics are displayed on both the IVD and RUO screens, but not on the Both screen.

**Figure 2.1** Screen Display - Patient Results - IVD

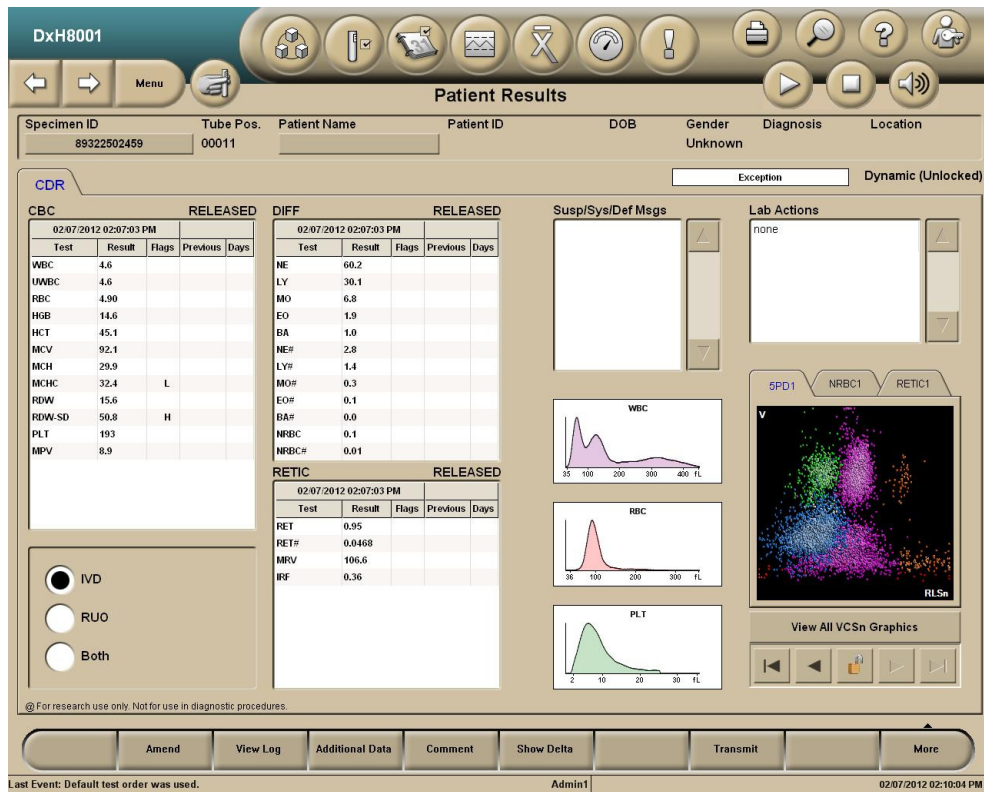


Figure 2.2 Screen Display - Patient Results - RUO

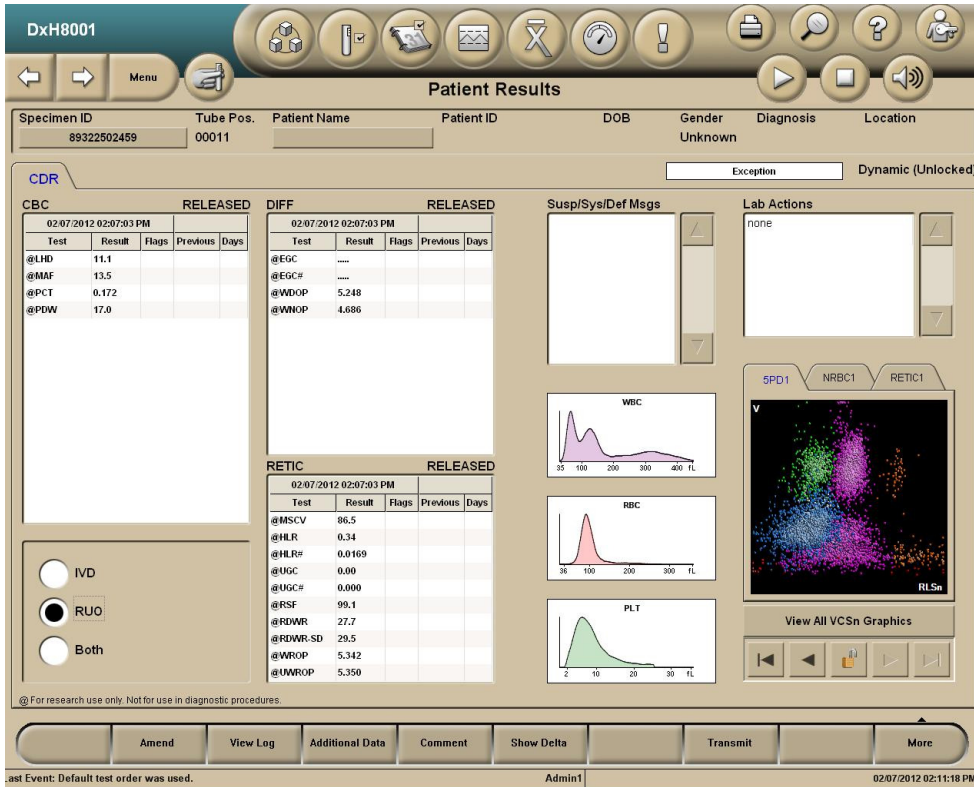
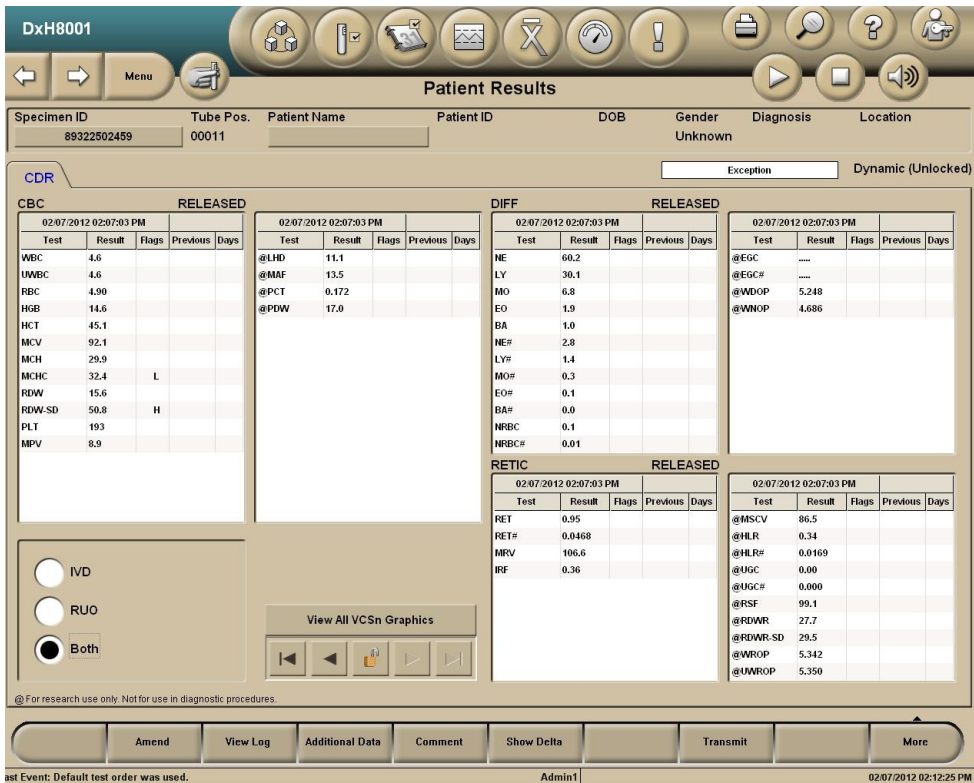


Figure 2.3 Screen Display - Patient Results - Both



## CPD

Enabled CPD parameters are displayed on the Additional Data screens. See [APPENDIX A, Cell Population Data](#) for information on the Additional Data screens.

## Using RUO and CPD in Decision Rules

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RUO and CPD parameters can be used in Decision Rules.

See the Instructions for Use manual for more information.



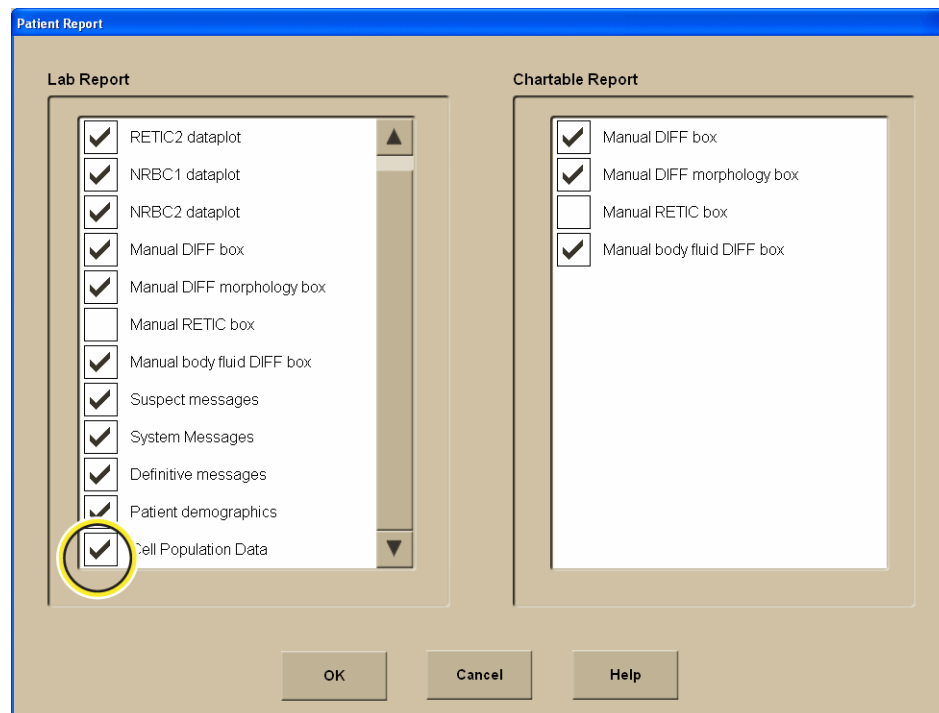
# Reporting, LIS Transmission, and Exporting

## Printed Reports

Enabled RUO parameters will be displayed on chartable, laboratory, and cumulative reports. An example of a laboratory report with all parameters enabled for reporting is shown on the following pages.

Enabled CPD parameters will be displayed on their own page of laboratory reports after the print capability is turned on as follows:

- 1 Select **Setup > Reporting > Patient Report**. The Patient Report dialog box will be displayed.
- 2 Select the **Cell Population Data** check box in the Lab Report section of the dialog box.



- 3 Select **OK** to display the Patient Lab Report. The report spans three pages when all parameters are enabled (RUO and CPD). Page 1 displays IVD information. Page 2 displays RUO information. Page 3 displays CPD information.

Patient Lab Report

Specimen ID: 89322502490	Panels: CDR	Priority: Routine
Specimen Type: Whole blood	Flag Set: Adult	Diagnosis:
Physician:		
Name:	Patient ID:	
Gender: Unknown	Age:	
Location:	DOB:	
Comment:		

Panels	Date	Time	Tube Pos	Instrument	Opr ID	Exceptions
CDR	(C) 02/21/2012	02:20:06 PM	00746	DxH8001	SYSTEM	Default Test Order

Test	Result	Flags	Units	WBC	RBC	PLT	SPD1	NRBC1	RETIC1	SPD2	NRBC2	RETIC2	Seg
WBC	4.5		10 <sup>3</sup> /uL										Band
UWBC	4.5		10 <sup>3</sup> /uL										Lymph
RBC	4.97		10 <sup>6</sup> /uL										Mono
HGB	13.0		g/dL										Eos
HCT	39.4		%										Baso
MCV	79.3		fL										Meta
MCH	26.1		pg										Myelo
MCHC	32.9		g/dL										Pro
RDW	14.8		%										Blast
RDW-SD	41.1		fL										ATL
PLT	127	L	10 <sup>3</sup> /uL										Other
MPV	11.1		fL										NRBC
NE	72.4		%										Aniso
LY	17.3		%										POik
MO	7.2		%										Polychr
EO	2.4		%										Hypo
BA	0.7		%										Micro
NE#	3.3		10 <sup>3</sup> /uL										Macro
LY#	0.8	L	10 <sup>3</sup> /uL										Other
MO#	0.3		10 <sup>3</sup> /uL										Reviewed by
EO#	0.1		10 <sup>3</sup> /uL										Comment
BA#	0.0		10 <sup>3</sup> /uL										
NRBC	0.1		/100WBC										
NRBC#	0.01		10 <sup>3</sup> /uL										
RET	0.91		%										
RET#	0.0453		10 <sup>6</sup> /uL										
MRV	97.7		fL										
IRF	0.33												

Actions:  
Comment:

INF/DAT Filename: 2012-02-21T14-20-06\_89322502490\_00746\_20139

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SYSTEM

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Patient Lab Report

Specimen ID: 89322502490	Panels: CDR	Priority: Routine
Specimen Type: Whole blood	Flag Set: Adult	
Physician:	Diagnosis:	
Name:	Patient ID:	
Gender: Unknown	Age:	
Location:	DOB:	
Comment:		

@ RUO

Test	Result	Flags	Units
@ LHD	7.0		%
@ MAF	10.3		
@ PCT	0.142		%
@ PDW	16.8		
@ EGC	0.2		%
@ EGC#	0.0		10 <sup>3</sup> /uL
@ WDOP	4.824		10 <sup>3</sup> /uL
@ WNOP	4.741		10 <sup>3</sup> /uL
@ MSCV	76.8		fL
@ HLR	0.31		%
@ HLR#	0.0152		10 <sup>6</sup> /uL
@ UGC	0.03		%
@ UGC#	0.002		10 <sup>6</sup> /uL
@ RSF	88.0		fL
@ RDWR	23.4		%
@ RDWR-SD	22.8		fL
@ WROP	4.935		10 <sup>3</sup> /uL
@ UWROP	4.941		10 <sup>3</sup> /uL

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*U.S. NAVY AIR SURV*

Patient Lab Report

Specimen ID: 89322502490	Panels: CDR	Priority: Routine
Specimen Type: Whole blood	Flag Set: Adult	
Physician:	Diagnosis:	
Name:	Patient ID:	
Gender: Unknown	Age:	
Location:	DOB:	
Comment:		

@ CELL POPULATION DATA

DIFF

	NE		LY		MO		EO	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
V	147	15.82	84	13.73	171	18.19	162	15.11
C	154	4.80	121	10.73	132	5.98	154	3.94
MALS	139	9.65	70	19.66	85	12.67	188	9.01
UMALS	138	10.40	67	22.21	93	12.15	199	9.73
LMALS	137	11.26	67	21.52	75	15.84	174	10.35
LALS	183	27.94	37	11.07	102	23.36	196	44.41
AL2	142	9.36	75	10.46	136	11.10	126	7.69

NRBC

	NRBC		NON-NRBC	
	Mean	SD	Mean	SD
V	47	12.60	155	53.09
C	99	75.75	137	35.50
MALS	113	27.25	201	37.59
UMALS	87	33.46	199	44.51
LMALS	149	29.20	202	35.97
LALS	122	36.92	88	29.41
AL2	106	6.76	176	30.58

RETIC

	RETIC		NON-RETIC	
	Mean	SD	Mean	SD
V	49	11.41	38	10.87
C	75	16.55	74	17.22
MALS	120	18.25	56	13.84
UMALS	123	16.79	59	13.65
LMALS	114	21.71	51	14.77
LALS	112	35.19	60	14.49
AL2	122	27.09	81	15.23

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## Transmit

### RUO Parameters

Enabled RUO parameters are automatically transmitted to the LIS.

## CPD

- 1 To transmit CPD, select **Menu > Setup > Communications > LIS**. The LIS window is displayed.

The screenshot shows the LIS configuration window with the following settings:

- LIS Interface:** Off
- Data Transport:** RS-232
- Disable All Automatic Transmissions:**
- Protocol:** NCCLS LIS1-A and NCCLS LIS2-A
- Cell Population Data:**
- Bidirectional Mode:** Dynamic Download
- Report Queue:** 0
- Enable Host Query:**  **Host Query Timeout:** 60
- Enable Host Log:**

**Settings:**

- Baud Rate:** 9600
- Parity:** Off
- Stop Bits:** 1
- Data Bits:** 8

**Graphics:**

Data Plots		Histograms	
5PD1 <input type="checkbox"/>	5PD2 <input type="checkbox"/>	RBC <input type="checkbox"/>	TNC <input type="checkbox"/>
RETIC1 <input type="checkbox"/>	RETIC2 <input type="checkbox"/>	WBC <input type="checkbox"/>	LATRON CP-X <input type="checkbox"/>
NRBC1 <input type="checkbox"/>	NRBC2 <input type="checkbox"/>	PLT <input type="checkbox"/>	

Buttons at the bottom: Delete Queue, Cancel Changes, Save.

Status bar: Last Event: pDev.IsValid() SvcAdmin 08/25/2014 03:15:29 PM

- 2 Select **LIS Interface > Off**.

**NOTE** The Cell Population Data can be transmitted using Host Query.

The Cell Population Data check box can be selected if the Enable Host Query check box is selected.

- 3 Select **the Cell Population Data** check box.

- 4 Select **LIS Interface > ON** to transmit CPD to the LIS.

## Export

**NOTE** You must have Level II access or higher to export patient data.

### **RUO Parameters**

Enabled RUO parameters are included in a separate export file with the extension `_RUO.csv` (filename\_RUO.csv).

### **CPD**

Enabled CPD are included in a separate export file with the extension `_CPD.csv` (filename\_CPD.csv).

# Cell Population Data

## Additional Data Screen

Figure A.1 Additional Data Screen - CBC Tab

Additional Data

Specimen ID: 89322502456  
 Patient Name:  
 Patient ID:

Raw Pressure 21.96 PSI      Ambient Temp 23.56 C  
 Raw Vacuum 21.63 In-Hg      Algorithm Version 1.0.4378.5196

CBC    DIFF    NRBC    RETIC    RELEASE

Panel Request

Instrument DxH8001  
 Date/Time 02/07/2012 09:31:30 AM  
 Presentation Cassette  
 Tube Pos ID 00014  
 Operator ID SYSTEM  
 Exception Status Default Test Order

Histogram data

For Service Use Only

H & H Check

Calculated HCT 43.7  
 Variance 0.3

HGB Detector Measurements

Blank 0.5253  
 Sample 0.2621

Vacuum (In-Hg)

Pre-count 6.03  
 Post-count 6.03

Temperatures (C)

CBC Bath 24.96

Event Count / sec

WBC  
 RBC  
 PLT

Aperture 1   
 Aperture 2   
 Aperture 3

	WBC	UWBC	RBC	MCV	RDW	PLT	MPV
	4.8	4.87	90.8	15.6	199	8.9	
	4.7	4.86	90.5	15.4	189	8.9	
	4.9	4.80	91.0	15.5	193	8.9	
Avg	4.8	4.8	4.84	90.8	15.5	194	8.9

Close    Help

Figure A.2 Additional Data Screen - DIFF Tab

Additional Data

Specimen ID: 89322502456  
 Patient Name:  
 Patient ID:

Raw Pressure 21.96 PSI      Ambient Temp 23.56 C  
 Raw Vacuum 21.63 In-Hg      Algorithm Version 1.0.4378.5196

CBC   **DIFF**   NRBC   RETIC   RELEASE

Panel Request

Instrument DxH8001  
 Date/Time 02/07/2012 09:31:30 AM  
 Presentation Cassette  
 Tube Pos ID 00014  
 Operator ID SYSTEM  
 Exception Status Default Test Order

DIFF Count / Time

Displayed	Analyzed	Total
7734	7755	8192
Actual	Low	High
12.7	2.9	21.7

Event Count / sec

Pressures (PSI)

Pre-cycle Sheath 7.95  
 Post-cycle Sheath 7.95  
 Pre-cycle Sample 9.01  
 Post-cycle Sample 9.02  
 Air Mix 4.03

Temperatures (C)

Reaction 25.36

Flagging Sensitivity

Blast High      Left Shift High  
 Variant Ly High      Imm Grans High

Cell Population Data @

	NE		LY		MO		EO		EGC	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
V	168	19.09	87	14.79	164	19.91	164	18.11	167	21.08
C	151	10.00	123	9.50	131	10.08	156	11.17	144	2.49
MALS	133	9.74	73	19.75	80	14.41	192	9.36	139	11.52
UMALS	139	13.77	71	22.17	89	14.50	202	11.21	149	10.70
LMALS	123	15.23	70	22.36	70	18.19	178	9.49	127	16.96
LALS	175	36.16	39	13.34	80	35.75	205	46.34	130	21.09
AL2	145	30.53	76	15.52	128	23.58	116	24.15	109	68.32

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Close      Help

Figure A.3 Additional Data Screen - NRBC Tab

**Additional Data**

Specimen ID: 89322502456  
 Patient Name:  
 Patient ID:

Raw Pressure 21.96 PSI      Ambient Temp 23.56 C  
 Raw Vacuum 21.63 In-Hg      Algorithm Version 1.0.4378.5196

CBC    DIFF    **NRBC**    RETIC    RELEASE

**Panel Request**

Instrument DxH8001  
 Date/Time 02/07/2012 09:31:30 AM  
 Presentation Cassette  
 Tube Pos ID 00014  
 Operator ID SYSTEM  
 Exception Status Default Test Order

**NRBC Count / Time**

Displayed	Analyzed	Total
6684	6790	6793
Actual		
10.0		

Event Count / sec

**Pressures (PSI)**

Pre-cycle Sheath 7.95  
 Post-cycle Sheath 7.95  
 Pre-cycle Sample 9.03  
 Post-cycle Sample 9.03  
 Air Mix 4.02

**Temperatures (C)**

Reaction 25.36

**Cell Population Data @**

	NRBC		NON-NRBC	
	Mean	SD	Mean	SD
V	47	3.89	131	56.35
C	97	25.74	146	49.15
MALS	96	20.80	192	41.71
UMALS	68	17.81	179	47.51
LMALS	136	31.84	206	40.07
LALS	138	27.40	85	37.22
AL2	101	7.72	173	33.70

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Close      Help

Figure A.4 Additional Data Screen - RETIC Tab

Additional Data

Specimen ID: 89322502459

Patient Name:

Patient ID:

Raw Pressure  PSI      Ambient Temp  C

Raw Vacuum  In-Hg      Algorithm Version

CBC

DIFF

NRBC

RETIC

RELEASE

**Panel Request**

Instrument

Date/Time

Presentation

Tube Pos ID

Operator ID

Exception Status

**RETIC Count / Time**

<b>Displayed</b>	<b>Analyzed</b>	<b>Total</b>
31968	32201	32768
<b>Actual</b>	<b>Low</b>	<b>High</b>
6.8	2.4	11.6

**Pressures (PSI)**

Pre-cycle Sheath

Post-cycle Sheath

Pre-cycle Sample

Post-cycle Sample

Air Mix

**Temperatures (C)**

Reaction

Stain

**Cell Population Data @**

	RETIC		NON-RETIC		UGC	
	Mean	SD	Mean	SD	Mean	SD
V	<input type="text" value="53"/>	<input type="text" value="14.75"/>	<input type="text" value="43"/>	<input type="text" value="11.72"/>	<input type="text" value="....."/>	<input type="text" value="....."/>
C	<input type="text" value="73"/>	<input type="text" value="17.13"/>	<input type="text" value="73"/>	<input type="text" value="16.31"/>	<input type="text" value="....."/>	<input type="text" value="....."/>
MALS	<input type="text" value="118"/>	<input type="text" value="19.02"/>	<input type="text" value="54"/>	<input type="text" value="13.67"/>	<input type="text" value="....."/>	<input type="text" value="....."/>
UMALS	<input type="text" value="122"/>	<input type="text" value="17.49"/>	<input type="text" value="58"/>	<input type="text" value="13.27"/>	<input type="text" value="....."/>	<input type="text" value="....."/>
LMALS	<input type="text" value="109"/>	<input type="text" value="23.04"/>	<input type="text" value="48"/>	<input type="text" value="14.86"/>	<input type="text" value="....."/>	<input type="text" value="....."/>
LALS	<input type="text" value="105"/>	<input type="text" value="29.66"/>	<input type="text" value="61"/>	<input type="text" value="13.96"/>	<input type="text" value="....."/>	<input type="text" value="....."/>
AL2	<input type="text" value="121"/>	<input type="text" value="25.03"/>	<input type="text" value="83"/>	<input type="text" value="16.94"/>	<input type="text" value="....."/>	<input type="text" value="....."/>

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Close

Help



Figure A.5 Additional Data Screen - RELEASE Tab

Additional Data

Specimen ID: 89342931572  
 Patient Name: Hall, Halle  
 Patient ID: 03141201

Raw Pressure  PSI      Ambient Temp  C  
 Raw Vacuum  In-Hg      Algorithm Version

CBC   DIFF   NRBC   RETIC   **RELEASE**

Test	Analyzed			Released	
	Run	Date/Time	Operator	Date/Time	Operator
WBC	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
UWBC	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
RBC	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
HGB	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
HCT	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
MCV	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
MCH	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
MCHC	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
@LHD	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
RDW	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
RDW-SD	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
@MAF	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
PLT	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
MPV	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
@PCT	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
@PDW	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
NE	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin
LY	2	03/14/2012 10:45:18 AM	SYSTEM	03/14/2012 10:49:58 AM	Admin

Close      Help



## Symbols

@BFM, 1-1  
@BFM#, 1-1  
@BFP, 1-1  
@BFP#, 1-1  
@EGC, 1-2  
@EGC#, 1-2  
@HLR, 1-2  
@HLR#, 1-2  
@LHD, 1-2  
@MAF, 1-2  
@MSCV, 1-2  
@PCT, 1-2  
@PDW, 1-2  
@RDWR, 1-2  
@RDWR-SD, 1-3  
@RSF, 1-3  
@UGC, 1-3  
@UGC#, 1-3  
@UWROP, 1-3  
@WDOP, 1-3  
@WNOF, 1-3  
@WROP, 1-3

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# Related Documents

Your DxH documentation can be found on our website at [www.beckmancoulter.com](http://www.beckmancoulter.com).

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PN B26673

## Instructions for Use

PN B26647

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- Daily Checks
- Quality Control
- Sample Analysis
- Data Review
- Workload
- Shutdown
- Setup
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- Quality Assurance
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## Host Transmission

PN B26711

## Hematology Tube List

PN A70017

[www.beckmancoulter.com](http://www.beckmancoulter.com)

