Dignity Health Central Coast Service Area

**SUBJECT**: Beckman DxH Background and Carryover Procedure 7500.H.CC.36

ORIGIN: Clinical Laboratory/Hematology

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| **Document Category:** | | | |
| Policy | Procedure | Standardized Procedure | Other: |

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| --- | --- | --- |
| **Applies to:** | | |
| Santa Maria Campus,  Marian Regional Medical Center | Arroyo Grande Campus,  Marian Regional Medical Center | French Hospital Medical Center |
| St. John’s Pleasant Valley Hospital | St. John’s Regional Medical Center | |

# purpose:

The amount, in percent, of sample remaining in the system and picked up by the next sample cycled is referred to carryover. Low-to-high carryover is the amount of sample with low cell concentrations carried over to samples with high cell concentration, such as diluent to blood. High-to-low carryover is the amount of samples with high cell concentrations carried over to samples with low cell concentrations, such as blood to diluent.

# REAGENTS/SUPPLIES:

EDTA specimen followed by three full diluent tubes

UniCel® DxH 800/DxH 600 Coulter® Cellular Analysis System

DxH Diluent, 628017

DxH Cell Lyse 628019

DxH Diff Pack 628020

DxH Cleaner 628023

DxH Retic Pack 628021

DxH sample cassettes

# CALIBRATION:

See DxH Calibration Procedure (7500.H.CC.33)

# QUALITY CONTROL:

Quality Control material including Latron, 6C Cell controls, Retic-X controls and Body Fluid controls, are tested once every 24 hours of use, and/or after maintenance, calibration or while troubleshooting. Latron control is performed once daily after shutdown.

# procedure:

**Note: Place the analyzer OFFLINE before beginning Carryover procedure.**

1. Select **Menu > QA > Carryover.**
2. Select **Carryover Setup** to display the Carryover Setup dialog box.
3. Select the “**CDR**” test panel from the Test Panel drop-down list. Select **OK** and follow the screen prompts.
4. Select OK to start a Carryover procedure.
5. Place one capped EDTA blood tube followed by three capped diluent tubes in a cassette and place in the input lane. Select **OK** to start Carryover.
6. When Carryover is complete, review the results on the Carryover screen.
7. Review the calculated % for each parameter and compare to the Carryover and Background limits for acceptability (see Tables 1.12 and 1.13 below).

**Note: On screen the carryover status will show PASS/FAIL and indicate the acceptability of each parameter.**

1. High to Low Carryover for **Body Fluids** is measured by analyzing a whole blood specimen followed by a diluent analyzed as a body fluid. The diluent sample should not exceed the Background limits as stated in Table 1.14 (Chapter 1: System Overview, Table 1.24 in Operator’s Manual).

**Background Procedure:**

The background procedure is performed automatically on Daily Start-up. Print Daily checks Detail Report and compare results to acceptable criteria (see Table 1.13)

# Interpretation of results

The status of each parameter is based on the following criteria:

1. Verify Carryover status is PASS for each parameter.
   1. CBC high to low Carryover is calculated as follows and should not exceed the limits stated in Table 1.12:

*Carryover = [(1st Diluent-3rd Diluent) / (3rd sample-3rd Diluent)]\*100*

* 1. For Diff, Retic, and NRBC the event count for each diluent should be within limits as stated in Table 1.12 below.

1. The status of the parameter is FAIL for carryover if the criteria described above are not met.
   1. For Diff, Retic, and NRBC the event count for each diluent should be within limits as stated in Table 1.12 below.

**CARRYOVER:**

Carryover results should not exceed the following limits:

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 1.12** High to Low Carryover | | |  |
| Parameter | Limit |  |  |
| WBC | ≤0.5% |  |  |
| RBC | ≤0.5% |  |  |
| HGB | ≤1.0% |  |  |
| PLT | ≤1.0% |  |  |
| NRBC | ≤75 events |  |  |
| DIFF | ≤200 events |  |  |
| RET | ≤600 events |  |  |

**BACKGROUND:**

The following tables list the acceptable background limits for Daily Checks and Body Fluids.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 1.13** Background – Daily Checks | | | **Table 1.14** Background - Body Fluids | | | | |
| **Parameter** | **Limit** |  | | **Parameter** | **Limit** |  | | |
| WBC | ≤0.05 x 10³/uL |  | | TNC | ≤20 cells/mm³ |  | | |
| RBC | ≤0.005 x 10⁶/uL |  | | RBC | ≤1000 cells/mm³ |  | | |
| HGB | ≤0.1 g/dL |  | |  | | | | |
| PLT | ≤3 x 10³/uL |  | |  |  | |  | |
| NRBC Region | ≤10 events |  | |  |  | |  | |
| NRBC Total | ≤60 events |  | |  |  | |  | |
| DIFF | ≤100 events |  | |  |  | |  | |
| RET | ≤600 events |  | |  |  | |  | |

# LIMITATIONS:

Background and Carryover must meet minimum requirements outlined by Beckman Coulter’s Tables: 1.12, 1.13 and 1.14. If Background and Carryover fail perform clean aspiration probe, backwash procedure and/or change aspiration probe. Repeat Background and Carryover with new sample. If repeatability fails again, contact your Beckman Coulter Representative.

# references:

**UniCel® DxH 800 Coulter® Cellular Analysis System,** Instructions for Use PN 629743AG (November 2010) System Manual

**UniCel® DxH Series with System Manage Software,** B26647AC (July 2015)

**UniCel® DxH 800 Coulter® Cellular Analysis System Training,** Module PN A69207AB.2 (February 2012) Professional Development

**DxH 600\_800 Repeatability & Carryover Troubleshooting Tech Tip Ver 1.0** (November, 2016)