

Software Versions 4.0 through 4.x Release Notes

These release notes support all versions 4.x of this software (that is, versions 4.0, 4.1, and potential future versions through 4.9). As part of our ongoing effort to enhance our products, Siemens Healthcare Diagnostics is releasing updated software for the DCA Vantage® analyzer. This document summarizes the new features and contains updates to the *DCA Vantage Operator's Guide*.

New Features in Software Version 4.x

The DCA Vantage Version 4.x software includes the following new and enhanced features:

Feature	Description
Configurable, customizable short-form printouts.	You can configure the system to print reports in either long (full) or short (partial) form. Some reported items, such as report headers, are customizable.
Auto Send	You can configure the system to automatically send patient or control test results to a data manager (LIS).
Auto Print	You can configure the system to automatically print patient or control test results without user interaction.
System serial number appears on the Home Help screens.	The system serial number appears on each page of the Home screen Help, on the same line and just to the right of the software version number.
For use in Japan, the system includes a configurable Japanese Mode indicator and a new HbA _{1c} reporting unit, HbA _{1c} (JDS).	When Japanese Mode is set to On, and you select JDS as the primary or secondary reporting unit, the display and printout show the units of the results as HbA _{1c} (JDS). If you select NGSP, the display and printout show the units of the results as HbA _{1c} (NGSP).

Feature	Description
Enhancements for entering patient data using the optional external barcode reader.	<p>If data entry is configured, the system accepts input of user-entered information from user-supplied barcodes read on the external barcode reader for the following patient/control test demographic fields:</p> <ul style="list-style-type: none"> • Sample ID (Patient Tests, Recall Edit) • Patient ID (Patient Tests, Recall Search, Recall Edit, Graph) • Patient Last Name (Patient Tests, Recall Search, Recall Edit) • Patient First Name (Patient Tests, Recall Edit) • Operator ID (Patient and Control Tests, Recall Control Search, Recall Patient/Control Edit)—except when the field is auto populated in Restricted Plus or Fully Restricted modes • Access Code • Comments 1–3 (Patient and Control Tests, Recall Patient Search, Recall Patient/Control Edit) • Comments 4–8 (Patient Tests, Recall Edit) <p>The system can read and display following characters: A-Z, a-z, 0-9, space, and punctuation characters; that is: ! @ # \$ % ^ & * () _ , - . + = { } [] \ ; : " ? ' < > / ~ ` .</p> <p>Note In the list above, the % character is the only illegal character in demographic data entry, but it is a valid entry in recall search screens.</p>
Wildcard search	You can use a wildcard (%) character in a recall search for a patient ID or patient last name.
Connectivity improvements	<p>You can configure the system to:</p> <ul style="list-style-type: none"> • automatically send pending test results for Ethernet ASTM and POCT1-A protocols when a failed connection is restored.

User Documentation Updates

The remainder of this document provides updates to the *DCA Vantage Operator's Guide*, describing new features and enhancements, procedure changes, and updates to information about existing features.

Barcode Reader

You can use the optional DCA Vantage system external handheld barcode reader, connected through the system's RS-232 interface, to enter and edit user information and to enter operator access codes. The software in the barcode reader automatically distinguishes between barcode formats.

External Barcode Reader Beam Safety

- Never look directly at the beam of a handheld barcode reader.
- Never point the scanner at another person.
- Do not look at the reflection of the beam from a shiny surface.

Barcode Symbologies

The DCA Vantage system supports the following barcode symbologies:

- Code 93
- Code 39 with and without check digit
- Code 128
- Codabar without check digit
- Interleaved 2 of 5 with and without check digit

Barcode Symbols and Labels Specifications

The DCA Vantage system supports the barcode entry for the following patient and control data:

Patient Data	Use	Control Data	Field Length (Characters)
Patient First Name	Patient Tests, Recall Edit		1–15
Patient Last Name	Patient Tests, Recall Search, Recall Edit		1–15
Patient ID	Patient Tests, Recall Search, Recall Edit, Graph		1–24
Sample ID	Patient Tests, Recall Edit		1–13

Patient Data	Use	Control Data	Field Length (Characters)
Operator ID	Patient and Control Tests, Recall Control Search, Recall Patient/Control Edit Note Except when the field is auto-populated in Restricted Plus or Fully Restricted modes	Operator ID	1–16
Comment 1	Patient and Control Tests, Recall Patient Search, Recall Patient/Control Edit	Comment 1	1–24
Comment 2, 3	Patient and Control Tests, Recall Patient/Control Edit	Comments 2,3	1–24
Comments 4–8	Patient Tests, Recall Edit		1–24

Note You cannot use the external barcode reader to initiate tests.

Cleaning the Cartridge Compartment Optical Window

1. Remove the air filter from the back of the instrument.
2. Rotate the cartridge holder with the compartment door partially closed to locate the optical window. See *Figure 34, Rotating the Cartridge Compartment*, page 103 in the *DCA Vantage Operator's Guide*.
3. With the cartridge holder fully rotated, locate the 2 round holes on either side of the cartridge holder. The optical window is the lower of the openings, nearer the cover.



1 Optical window

Figure 1: Location of Optical Window Openings

4. Fully open the cartridge compartment cover.

5. Using a canister of pressurized, compressed air, carefully direct the spray of air through the optical window holes on both sides of the cartridge holder, aiming the nozzle toward the side or back of the instrument.



CAUTION

When using compressed air, hold the canister as vertically as possible, tilting the instrument if necessary. If you hold the canister at a sharp angle to the vertical, liquid propellant can escape from the canister and damage the optics. You must hold the canister in a nearly vertical position to get only a spray of air with no liquid.

6. Return the cartridge holder to its original position and close the compartment door.
7. Replace the air filter.
8. If the problem persists, contact the Siemens Technical support Center or your local technical service provider.

Help Menu, Software Version, and System Serial Number

The Help menu provides information about the DCA Vantage system. The software version number and system serial number also appear on the Home Help screen. To access the Help menu, select **Help** from the Home screen.

Operator IDs and Access Codes

By default, the system access is Unrestricted. In this mode, the Operator button is always available. Selecting the Operator button displays a new screen that enables you to add, edit, and delete operators.

Note The term Operator ID replaces the term User ID used in earlier versions of DCA Vantage software.

You can add up to 1000 operators. Each Operator ID and access code must be unique. When system access is set to Fully Restricted or Restricted Plus, the operator enters his or her access code to continue. The system auto-populates the Operator ID data entry item according to the user's entered password (Access Code or Support ID of the Day) when the following conditions are true:

- Patient or control test is being run
- System access is configured as Fully Restricted or Restricted Plus mode
- User has been authenticated after entering a valid password

Performing Control Tests

You must perform control tests when they are scheduled. If a required control test is due, you must perform that test before you can run patient tests. If an optional control test is due, you can still run patient tests without performing the optional control test.

Control Test Limits

The DCA Vantage system is qualified for specific reportable ranges, as indicated in the following table. If the HbA_{1c} value is less than the lower limit or greater than the upper limit, the instrument displays a warning message. Depending on the primary reporting unit configured, this message tells you when a reported value is less than or greater than the range for that unit.

The following table lists the control test limits for each algorithm type:

Algorithm	Lower Limit	Upper Limit
NGSP	2.5%	16.0%
JDS	2.2%	15.4%
mono-S	1.5%	14.7%
IFCC	4 mmol/mol	151 mmol/mol

Using a Wildcard Search

You can use a wildcard (%) character in any valid recall search field where data input is allowed, depending on how the Search option is configured. The valid recall search fields are as follows:

- Patient tests: Patient_ID, Patient Last Name, and Comment 1.
- Control tests: Operator_ID.

For example, to search by Patient_ID or Patient Last Name, do the following:

Enter the Patient_ID or Patient Last Name that you want to find with the keypad or external barcode reader.

Use the percent (%) character as the wildcard for searching.

You cannot use the % character as a wildcard when you enter a Patient_ID for the graph feature.

Entering Patient Sample Data

The Sample Data screen displays when the system detects that the system door is closed. The appearance of this screen after the 5-second delay, indicates that a test is in progress.

Note You can enter data during the test only if you have configured the system to enable data entry.

You can enter the following sample demographic information using the touchscreen or external barcode reader:

- Sample ID
- Patient ID
- Last Name
- First Name
- Comment 1–8
- Operator ID

Entering Patient Information Using the Touchscreen

1. Select **Sample ID**.
2. Enter the **Sample ID**.
3. Select **Enter**.

The Sample ID displays next to the Sample ID button.

4. Select **Patient ID**.
5. Enter the **Patient ID**.
6. Select **Enter**.

The Patient ID displays next to the Patient ID button.

7. Select **Last Name**.
8. Select **First Name**.
9. Select **Comments 1–8**.
10. Select **Operator ID**.

The Operator ID is pre-populated (and read-only) if the system is in Restricted Plus mode or Fully Restricted mode.

Note If GFR is enabled, you can calculate the GFR.

Rules for Entering Patient Data Using the Barcode Reader

The following rules apply to data entered by the external barcode reader:

- You can enter and display the following characters: A–Z, a–z, 0–9, space, and punctuation characters. The system accepts the following punctuation characters:

!"#\$%&'()*+,-./:;<=>?@[\] ^ _ ` { | } ~

Note The percent sign (%) is valid only on Recall Search screens, where it is used as a wildcard character in the search.

- When creating barcodes, use only the characters that are allowed for the corresponding input fields.
- The system accepts data input of user-entered information from user-supplied barcodes read on the external barcode reader for the following Operator Management screen fields for adding or editing:
 - Operator ID
 - Access Code
- A search to recall the samples associated with the data entered by barcode is not case sensitive.
- The system accepts data input of user-entered information from user supplied barcodes read on the external barcode reader whenever a user is prompted to enter an Access Code.

The barcode symbols, and the labels themselves, must meet certain specifications, detailed below:

Number of Characters: 1–24 data characters. (A maximum of 24 characters can be displayed, stored, printed, and transmitted by the DCA Vantage system.)

The Interleaved 2 of 5 (I2of5) symbology requires an even number of characters. If a scanned barcode has an odd number of characters, the symbology adds a leading zero, up to the maximum of 24 characters. For example, 1 becomes 01.

Narrow Bar Width: 0.15–0.51 mm (0.006–0.02 inches). It is better to be closer to the upper limit (0.51 mm/0.02 inches), as long as the entire barcode can be contained within the maximum length.

This measurement affects both the symbol length and how far away from the label you can hold the handheld reader. If the narrow bar width is at the minimum, the symbol length can be no greater than 90 mm (3.5 inches), including quiet zones, and the reader can be held no more than 75 mm (3 inches) away.

Narrow to Wide Ratio: Must be within the specifications for the format being used. This is generally 2.0–3.0.

Symbol Length: Variable. See *Narrow Bar Width* for more information.

Quiet Zone: Minimum of 10 times the narrow bar width at each end of the symbol.

Symbol Height: Minimum of 10 mm (0.40 inches).

Total Size of Label: May be greater than the size of the symbol to allow for printing of human readable information. Printing of the specimen ID number in alphanumeric digits is strongly recommended.

Symbol grade: Minimum grade of "C" as defined by ANSI X3.182-1990 (available from American National Standards Institute, 1430 Broadway, New York, NY 10018).

Wavelength of Light: 630 nm (visible red LED).

Entering Patient Data Using the Barcode Reader

When the Sample Data screen displays, you can use the external barcode reader to scan the patient barcodes in each selection to add the patient data (First Name, Last Name, Patient ID, Sample ID, Operator ID, Access code (if required), and Comments).

1. Select **Sample ID**.
2. Scan the Sample ID barcode.

The Sample ID displays next to the Sample ID button when the scan completes.

3. Select **Patient ID**.
4. Scan the Patient ID barcode.

The Patient ID displays next to the Patient ID button when the scan completes.

5. Continue selecting the Sample Data fields (First Name, Last Name, Operator ID, Comments), and scanning the barcodes to enter the information.

Note The Operator ID is pre-populated (and read-only) if the system is in Restricted Plus mode or Fully Restricted mode.

HbA_{1c} Testing and Results

The DCA Vantage Analyzer is qualified for specific reportable ranges, as indicated in the following table. If the HbA_{1c} value is less than the lower limit or greater than the upper limit, the instrument displays a warning message. Depending on the primary reporting unit configured, this message tells you when a reported value is less than or greater than the range for that unit.

The following table shows the Patient Test limits for each of the supported reporting units:

Reporting Unit	Lower Limit	Upper Limit
NGSP	2.5%	14.0%
JDS	2.2%	13.5%
mono-S	1.5%	12.7%
IFCC	4 mmol/mol	130 mmol/mol

HbA_{1c} Results Range

Use the Set Lower Limit screen to set the HbA_{1c} search filter value when doing a search by result range. The Lower Search Limit displays in the units of the primary algorithm and cannot be set lower than the following values:

- NGSP: 2.0%
- JDS: 1.7%
- mono-S: 1.0%
- IFCC: 3 mmol/mol

The search returns any test result that is greater than the lower limit set.

Designating the Primary and Secondary HbA_{1c} Reporting Units

A supervisor (that is, a Level 1 Operator) can designate the required primary, and optional secondary HbA_{1c} Reporting Units for displaying and printing using the following procedure:

1. At the Home screen, select **Menu**.
2. Select **System Settings**, from the Menu screen.
3. At the **System Settings** menu, select **Additional Settings**.
4. Select **HbA1c Reporting Units**.
The access code screen displays.
5. Enter the access code with the keypad or external barcode reader.
6. Select **Enter**.
The HbA_{1c} Reporting Units screen displays.
7. Select the Primary Reporting units.
8. Select the optional Secondary Reporting units.
9. Select **Save**.

Values for NGSP, mono-S, and JDS are expressed in %.

The IFCC value is expressed as mmol/mol.

The following tables show the allowable reporting units selections on this screen:

- Table 1 on page 11 shows the reporting units settings available when Japanese mode is set to Off.
- Table 2 on page 11 shows the reporting units settings available only when Japanese mode is set to On.

Table 1: HbA_{1c} Reporting Units Settings, Japanese Mode Off

Primary	Secondary
IFCC	None
IFCC	NGSP
IFCC	mono-S
NGSP	None
NGSP	IFCC
NGSP	mono-S
mono-S	None
mono-S	IFCC
mono-S	NGSP

Table 2: HbA_{1c} Reporting Units Settings, Japanese Mode On

Primary	Secondary
NGSP	None
NGSP	JDS
NGSP	IFCC
JDS	None
JDS	NGSP
JDS	IFCC
IFCC	None
IFCC	NGSP
IFCC	JDS

Note When you select JDS, the display and printout show the units of the results as HbA_{1c}(JDS). If you select NGSP, the display and printout show the units of the results as HbA_{1c}(NGSP).

HbA_{1c} Patient Test Results

The system displays the following information for each patient HbA_{1c} test. You have to enable some of the data entries in System Settings:

Result	Description
System Serial Number	The serial number of the DCA Vantage system.
Test Name	The type of test, either Microalbumin/Creatinine test or HbA _{1c} test.
Sample Sequence Number	The sample sequence number.
Transmission Status	The transmission status of the record.
Cartridge Lot Number	The lot number of the cartridge.
Test Cartridge Scan Date and Time	The date and time the test cartridge was scanned.
Sample ID	The sample ID, if you entered one into the system.
Patient ID	The patient ID, if you entered one into the system.
Patient Last Name	The last name of the patient, if you entered one into the system.
Patient First Name	The first name of the patient, if you entered one into the system.
Operator ID	The Operator ID, if you entered one into the system.
Comment 1–8	Any comments you entered regarding the patient.
Glomerular Filtration Rate (GFR) and input data items	The GFR calculated measurement based upon data input. The GFR is displayed if calculated. Refer to <i>Configuring GFR for a Patient</i> , page 82 in the <i>DCA Vantage Operator's Guide</i> .
HbA _{1c} %	The percentage of HbA _{1c} .
Primary and Secondary Reporting Units)	The primary and secondary (if selected) HbA _{1c} Reporting Units names display.
User correction slope and offset	The user correction slope and offset if one is applied to HbA _{1c} .

Reporting Results Calculations

The system generates calculations for HbA_{1c} and GFR. You can customize the result reporting units according to your clinical practice or lab requirements.

Percent HbA_{1c} Calculation

The system calculates the values for HbA_{1c} for patient tests. To calculate the HbA_{1c} percentage, the system uses the concentration of HbA_{1c} divided by the total hemoglobin concentration.

$$\% \text{HbA}_{1c} = (\text{HbA}_{1c} / \text{Total Hemoglobin}) \times 100$$

Dual Reporting Calculations – HbA_{1c} and IFCC Units

The dual reporting calculations convert the NGSP percentages to IFCC mmol/mol. The source for the following calculations is <http://www.ngsp.org>.

DCA Vantage Mode	From IFCC to %HbA _{1c}	From %HbA _{1c} to IFCC mmol/mol
NGSP	$\text{NGSP} = (0.09148 \times \text{IFCC}) + 2.152$	$\text{IFCC} = (10.93 \times \text{NGSP}) - 23.50$

Glomerular Filtration Rate Calculation

The system calculates the values for Glomerular Filtration Rate (GFR) by using the following calculation. The source for the calculation is the National Kidney Foundation publication of 1999 MDRD study equation.

$$\text{GFR} = 186 \times (\text{plasma creatinine mg/dL})^{-1.154} \times (\text{patient age years})^{-0.203} \times (0.742 \text{ if female patient}) \times (1.210 \text{ if African-American patient})$$

Reports

Patient Test Reports

Patient Test Reports contain the results of HbA_{1c} and Microalbumin/Creatinine tests that you generate during analysis and display at the results screen. You can generate printed reports at analysis time and when print requests are issued at Data Recall. You can also generate a printed report when you perform a Demonstrated Patient Test.

Report Components

You can specify whether to print a long or a short report of the patient test results. Regardless of the printed report type setting, the system transmits the long-form report.

Patient Trend Graph Report

The printed Patient Trend Graph Report prints from the Data Recall menu to an external printer. To print a graph, you must have an external printer connected to the DCA Vantage system.

Control Test Report

The Control Test Report prints the results for Control Tests generated during analysis, and displays at the Results screen.

Note The patient printed test report has no effect on the Control Test Report.

Calibration Data Report

The Calibration Data Report prints the results generated when the HbA_{1c} and Microalbumin/Creatinine cards are scanned into the system. The report prints the lot number, date and time that the calibration cards were scanned. The printed reports for a single cartridge scan are generated when you select print when you scan. Calibration Data Reports for all the calibration data stored on the system print when a request is issued at Data Recall.

Note Select **Print** after scanning the calibration card to print the calibration data report.

Viewing and Printing System Settings Reports

The View System Settings option lets you display and print a partial list of the configuration settings for the system. The printed partial System Settings Report contains the same subset of the system settings that appears on the View System Settings screen.

From the Additional Settings screen, you can print a full System Settings Report by selecting **Print** at the bottom of the screen. The full System Settings report contains all of the configuration settings for the system.

Viewing the Current System Settings

You can view the system settings including serial number, software version number, patient test settings, patient printed report type, control test settings, reminders, time format, and MAC address.

Viewing and Printing a Partial System Settings Report

To print a partial System Settings Report, perform the following steps:

1. At the Home screen, select **Menu**.
2. Select **System Settings** from the Menu screen.
3. To view the partial Systems Settings Report, select **View Settings**.
The View Settings screen displays the current system settings.
4. To print the current system settings, select **Print**.

Printing a Full System Settings Report

To print a full System Settings Report, perform the following steps:

1. At the Home screen, select **Menu**.
2. Select **System Settings** from the Menu screen.
3. Select **Additional Settings** from the System Settings screen.
4. Select **Print**.

Printed Reports

This section shows the contents of several of the printed reports that you can select. The Patient Test Report and the System Settings Report have both a long and a short format. These tables show the contents of each:

- *Patient Test Report Contents*, page 15
- *Patient Trend Graph Report Contents*, page 17 (Requires external printer)
- *Control Test Report*, page 17
- *System Settings Report*, page 19

Patient Test Report Contents

When an HbA_{1c} or Microalbumin/Creatinine patient test completes, the system displays the results on the screen. If you have enabled printing, the system can also print the results on the onboard or external printer, depending on the system settings. The short-form printout contains less data but prints faster. The displayed patient test results are the same as for the long-form printed results. The following table summarizes the information that the system prints for patient tests.

This table uses the following symbols:

✓	Always reported				
○	Omitted if not specified, disabled or deactivated, not calculated, default, or unedited				
(Blank)	Not applicable				
Value	HbA _{1c} Full Form	HbA _{1c} Short Form	A/C Full Form	A/C Short Form	Max. Field Length (Number of Characters)
DCA Vantage Product Logo	✓	✓	✓	✓	
Report Title	✓		✓		

Value	HbA _{1c} Full Form	HbA _{1c} Short Form	A/C Full Form	A/C Short Form	Max. Field Length (Number of Characters)
Custom Header 1 & 2	0	0	0	0	24 per line
Print Date	✓		✓		
Serial Number	✓	✓	✓	✓	
Test Date	✓	✓	✓	✓	
Sequence Number	0	0	0	0	
Cartridge Lot	✓		✓		
HbA _{1c} Primary Reporting Units	✓				
HbA _{1c} Secondary Reporting Units	0				
HbA _{1c} User Slope	0				
HbA _{1c} User Offset	0				
HbA _{1c} Primary Result	✓	✓			
HbA _{1c} Secondary Result	0				
HbA _{1c} Ref. Range	0				
Albumin User Slope			0		
Albumin User Offset			0		
Creatinine User Slope			0		
Creatinine User Offset			0		
A/C			✓	✓	
Albumin			✓	✓	
Creatinine			✓	✓	
GFR	0		0		
Age	0		0		
Gender	0		0		
Race	0		0		
Plasma Creatinine	0		0		
Operator ID	0		0		16
Sample ID	0		0		13
Patient ID	0	0	0	0	24
Patient Last Name	0		0		15
Patient First Name	0		0		15
Comments 1–8	0		0		24
Test Edited	0	0	0	0	

Value	HbA _{1c} Full Form	HbA _{1c} Short Form	A/C Full Form	A/C Short Form	Max. Field Length (Number of Characters)
Test Imported – SN -----	O ✓	O ✓	O ✓	O ✓	
(End of report)					

Patient Trend Graph Report Contents

When you issue a print request in a data recall function, you can generate a graph of patient results if you have an external printer attached to your system. The following table shows the contents of a patient trend graph report.

This table uses the following symbols:.

✓	Always reported
O	Omitted if not specified

Value	Required?
DCA Vantage Product Logo	✓
Report Title	✓
Custom Header 1 & 2	O
Print Date	✓
Serial Number	✓
Patient ID	O
Patient Last Name	O
Patient First Name	O
Graph	O
Start Date	✓
End Date	✓
-----	✓
(End of report)	

Control Test Report

The Control Test Report prints Control Test results that are generated when you do the analysis. The system displays these results on the screen. You can generate a printed report when the results or the analysis are complete and when you issue print request during a Data Recall operation.

The following table summarizes the contents of a Siemens HbA_{1c} Control Test Report.

This table uses the following symbols:

✓	Always reported
O	Omitted if not specified
(Blank)	Not applicable

Value	HbA _{1c}	A/C
DCA Vantage Product Logo	✓	✓
Report Title	✓	✓
Custom Header 1 & 2	O	O
Print Date	✓	✓
Serial Number	✓	✓
Test Date	✓	✓
Sequence Number	O	O
Cartridge Lot	✓	✓
Control Lot	✓	✓
HbA _{1c} Primary Reporting Units	✓	
HbA _{1c} Secondary Reporting Units	O	
Level	✓	✓
Primary HbA _{1c} Result	✓	
Secondary HbA _{1c} Result	O	
Albumin Result		✓
Creatinine Result		✓
Test Result Status (Passed or Failed)	✓	✓
HbA _{1c} Lower Bound	✓	
HbA _{1c} Upper Bound	✓	
Creatinine Lower Bound		✓
Creatinine Upper Bound		✓
Operator ID	O	O
Comment 1	O	O
Comment 2	O	O
Comment 3	O	O
Test Edited	O	O
Test Imported – S/N	O	O
-----	✓	✓
(End of report)		

System Settings Report

The following table summarizes the contents of a System Settings Report. This table uses the following symbols:

✓	Always reported
O	Omitted if not specified

Value	Full Report	Partial Report
DCA Vantage Product Logo	✓	✓
Report Title (Full or Partial)	✓	✓
Custom Header 1 & 2	O	O
Print Date	✓	✓
Serial Number	✓	✓
Software Version	✓	✓
Patient Test Data Entry		✓
Control Data Entry		✓
Sample ID	✓	
Patient ID	✓	
Last Name	✓	
First Name	✓	
Operator ID	✓	
Comments 1–8	✓	
Urine Creatinine Units	✓	
HbA _{1c} Primary Reporting Units	✓	✓
HbA _{1c} Secondary Reporting Units	✓	✓
HbA _{1c} Reference Range Values	✓	✓
HbA _{1c} Reference Range Output	✓	✓
HbA _{1c} User Slope	✓	✓
HbA _{1c} User Offset	✓	✓
Albumin User Slope	✓	✓
Albumin User Offset	✓	✓
Creatinine User Slope	✓	✓
Creatinine User Offset	✓	✓
GFR Calculation	✓	✓
Patient Recall List Option	✓	
Microalbumin Norm. Factor	✓	
Operator ID	✓	

Value	Full Report	Partial Report
Comments 1–3	✓	
HbA _{1c} Normal	✓	
HbA _{1c} Abnormal	✓	
A/C Low	✓	
A/C High	✓	
Control Test Reminders	✓	✓
New Lot Reminder	✓	✓
Other Controls	✓	✓
Maintenance Reminders	✓	✓
Change Air Filter	✓	
Clean Barcode Window	✓	
Clean Cart. Compartment	✓	
Run Optical PD Test	✓	
Language	✓	
Time Format	✓	✓
Date Format	✓	✓
Sequence Number	✓	✓
System Access	✓	✓
Remote Lockdown	✓	✓
Test Lockout	✓	✓
Settings Wizard	✓	
Automatic Data Purging	✓	✓
Sound Volume	✓	✓
Onboard Printer	✓	✓
Onboard Printer Autoprint	✓	✓
External Printer	✓	✓
External Printer Autoprint	✓	✓
Patient Report	✓	✓
Custom Header 1 & 2	○	
External Barcode Reader	✓	✓
Symbology	✓	
Check Digit	✓	
Port	✓	✓
Protocol	✓	○
Serial Port	✓	
Baud Rate	✓	
Parity	✓	
Data Bits	✓	

Value	Full Report	Partial Report
Stop Bits	✓	
Ethernet Port	✓	
Host Name	✓	
IP Setting	✓	✓
IP Address	✓	
Port Number	✓	
Subnet Mask	✓	
DNS	✓	
Default Gateway	✓	
Remote Computer	✓	
MAC Address	✓	✓
End Date	✓	
-----	✓	✓
(End of report)		

Customizing Printed Report Headers

You can optionally specify a 1- or 2-line header that appears on all printed reports. Each line can be up to 24 characters long.

1. At the Home screen, select **System Settings**.
2. At the System Settings menu, select **Additional Settings**.
3. At the Additional Settings menu, select **Printers**.
4. Select **Report Headers**.
5. Select **Line 1**.
 - a. Use the keypad to enter up to 24 characters for the first header line.
 - b. Select **Enter** to save this line.
6. If you want a second header line, select **Line 2**.
 - a. Use the keypad to enter up to 24 characters for the second header line.
 - b. Select **Enter** to save this line.
7. Select **Back** to return to the Printers screen.

Note If you reset the printer defaults, the report headers are deleted.

Setting the Printed Patient Test Report Type

Specify whether you want full (long) or short (partial) reports by performing the following steps:

1. At the Home screen, select **System Settings**.
2. At the System Settings menu, select **Additional Settings**.
3. At the Additional Settings menu, select **Printers**.
4. Select **Report Type**.
5. Select **Full Report** or **Short Report**.
6. Select **Save** to return to the Printers screen.

Note Before attempting to print, make sure that at least one printer is enabled.

Displaying, Printing, and Sending Results

You can print patient test results from the Results screen, the Recall screen, or the Edit User Data screen.

Whenever one or more printers is enabled and set to Autoprint, the system prints the patient test results as soon as the data entry process and the sample analysis complete.

The Result screen displays when the system finishes analyzing the sample. This screen displays result values and demographics for each test. You can edit the sample demographics and comments at the Sample Data screen, and you can print the result.

If you have enabled automatic printing, the test result prints automatically as soon as the test result displays. If you edit the data, you must manually select Print if you want a printed record of the change.

To print manually, select **Print**. If the print button is not enabled, then the printer is disabled in Setup, or there is no paper.

If you select the **Full Report** option, all of the information that displays on the screen prints in the report.

If you select the **Short Report** option, a subset of the displayed information prints in the report.

If you have enabled Auto Send, the system sends the test results automatically to the LIS as soon as the test has completed. If you enter or modify the patient demographic data, the system automatically saves the changes and sends the test results to the LIS when you select **Next** on the Edit User Data screen.

Automatically Sending Data to an LIS

When you have enabled communications with an LIS, you can configure the system to automatically send all patient and control test results to the LIS as soon as the test result has completed, or as soon as you have finished entering or modifying patient demographic data.

Note Auto Send does not apply to recalled patient and control test results.

The following conditions apply:

- Auto Send must be enabled.
- Communications must be enabled.
- A remote computer system (LIS) must be configured.

If you change the demographic fields, the system resends the test results when you return to the test results screen. The LIS should discard the first transmission and use only the modified version.

To enable Auto Send, perform the following procedure:

1. From the Home screen, select **Menu > System Settings > Additional Settings > Connectivity**.
2. Select the type of connection, **Ethernet** or **Serial**, and the protocol, **ASTM** or **POCT1A**.
3. To enable Auto Send, select the **Automatically Send** check box.
This selection is disabled by default.
To enable manually sending selected results, clear this check box.
4. Select **Configure** to set up the Ethernet or Serial port connection.
Note At this stage, the system does not verify whether a connection exists.
5. Continue configuring the Ethernet or Serial connection parameters.
6. When finished, select **Save**.

The Auto Send setting is included in the backup and restore data so an administrator can copy the settings from one DCA™ system to another.

Exported Patient Data Files

Note When you export patient data, the result is a tab-delimited text file. The patient data is stored as ExportedHbA1cPatient.txt file for HbA_{1c}, and as ExportedMicroalbuminCreatinine.txt for Microalbumin/Creatinine. You can view and save these on your PC using a text editor or a spreadsheet program.

Updated Preservice Question 6

If you responded No to preservice question 6, "Are reasonable results being displayed and printed for the Quality Control and patient samples?", perform the following actions:

- Repeat the test.
- If expected results are not recovered, repeat testing with new QC material.
- If QC is out of range, record the QC lot and cartridge lot.
- Consult your technical support provider.

Caution When Using a RAPIDComm[®] System



CAUTION

If you are using a RAPIDComm data management system, you must enable sequence numbers so that RAPIDComm can detect duplicate transmissions. Failure to do so can result in a patient result record being sent to the Laboratory or Hospital Information System more than once.

Updated POCT1-A Caution

For software versions 4.0 and higher, the Patient Test Data Entry Setting for Patient ID is always both Enabled and Required. You cannot change this setting. However, you can change the value to another valid entry in the Patient_ID field.

POCT1-A2, the default Ethernet connection protocol, requires a value in the Patient_ID field in the patient observation test record. You cannot change this requirement.

The ASTM protocol allows a blank Patient_ID field. You may select ASTM as your Ethernet protocol. For detailed information, see the *DCA Vantage Analyzer Host Computer Communications Link* manual.

Transmission Status

The system displays the status of the transmission on the test result screen when communications are enabled, so that you know whether the LIS has received the transmission.

The transmission status can be one of the following:

- Not Sent: The message has not been transmitted to the LIS.

- **Sending:** Transmission is in process, but the system has not received acknowledgement from the LIS. The connection might have gone down either during or after the attempted transmission, and the connection has not been restored.

For the Ethernet ASTM protocol, the system tries again to transmit the results if the connection is restored within 72 hours of the most recent successful transmission. For the POCT1-A protocol, no time limit exists for retries.
- **Received:** The message was sent to the LIS, and the LIS has acknowledged receipt of the message.
- **Failed:** The LIS did not receive the message, or the LIS did not acknowledge the receipt of the message.
 - For a serial connection using the ASTM protocol, the test result has failed to be received by the LIS on the first attempt to transmit.
 - For an Ethernet connection using the ASTM protocol, 72 hours have passed since the most recent manual-send or auto-send after a good connection went down, and the test result has failed to be received by the LIS on subsequent attempts to transmit.
- **Unknown:** Only for test results created on Version 2.0 and upgraded directly to version 4.0 or greater. Not for live tests.

Recovery from a Failed Ethernet Connection

If the Ethernet connection to the LIS fails (goes down) and is subsequently restored, the system tries to retransmit only those patient or control test results that have a transmission status of Sending. When the transmission succeeds, the transmission status is updated accordingly.

If this is an ASTM connection, a transmission is considered to be failed if 72 hours have passed since the most recent transmission after a good connection went down, and the LIS did not receive the message on subsequent attempts to transmit it.

Trademark Information

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