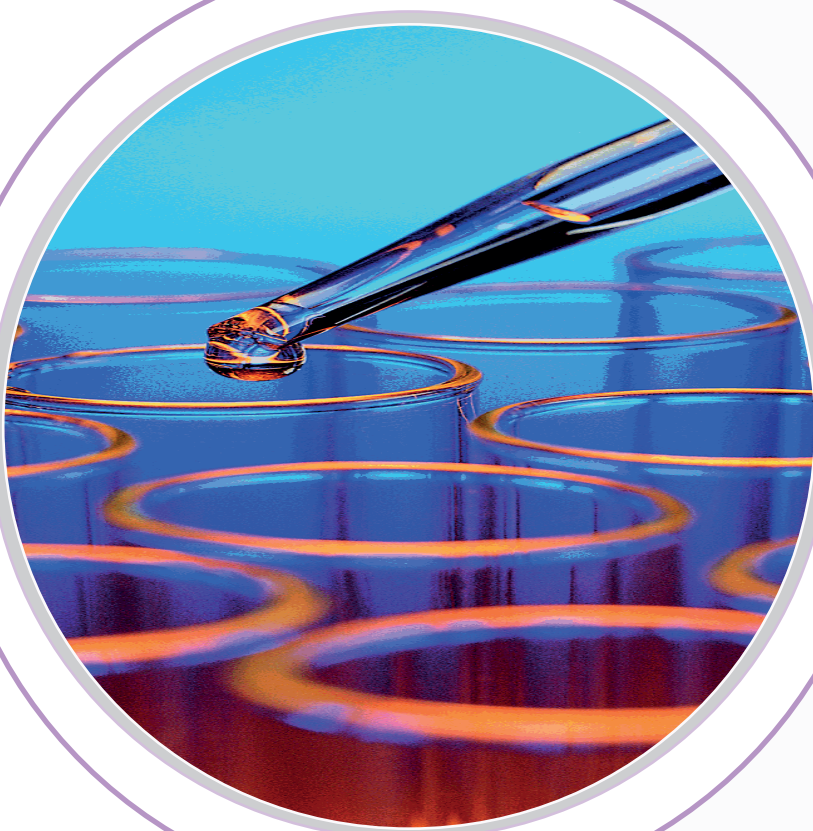




HUQAS INFORMATICS SYSTEM USER GUIDE



..... advancing healthcare through improved laboratory testing.
email us : huqas@huqas.org and visit us: www.huqas.org



Table of Content.

1. About HuQAS
 - 1.1 The PT programs offered include
 - 1.2 Customer Support
2. HuQAS PT Design
3. HuQAS Informatics System (HIS)
 - 3.1 Software Requirements
 - 3.1.1 Tips And Tricks To The HuQAS Informatics System
4. How To Login In To The HuQAS Informatics System.
 - 4.1 What Lies Ahead After Log In.
5. Managing Lab Users.
6. Managing Laboratory Instruments
 - 6.1 Viewing Instruments.
 - 6.2 Adding Instruments.
 - 6.3 Editing Instruments.
7. Managing Programs Analytes.
 - 7.1 Viewing Programs and its analytes.
 - 7.2 Adding analytes to a program.
 - 7.3 Editing analytes of a program.
8. Entering results of an open test event.
 - 8.1 Confirming Registered Programs for a Test Event.
 - 8.2 Confirming Analytes before Entering Results.
 - 8.3 Confirming Sample Conditions.
 - 8.4 Viewing Qualitative Results List.
 - 8.5 Viewing Quantitative Results List.
 - 8.6 Entering Quantitative Results.
 - 8.7 Entering Qualitative Results.
9. Reports
 - 9.1 Viewing Test Event Reports.
10. The Dashboard.
 - APPENDIX 1. Lab Qualitative Report.
 - APPENDIX 2. Lab Quantitative Report.
 - APPENDIX 3. Participation Statistics Report.
 - APPENDIX 4. Laboratory Results Interpretation Summary.



1.0 ABOUT HuQAS

HuQAS (Human Quality Assessment Services) is a Kenyan registered Non-Governmental Organization (NGO) that has been offering Proficiency Testing services to Public and Private medical laboratories since the year 2000. HuQAS has operations in Kenya, Uganda, Tanzania and Nigeria and is accredited to ISO/IEC 17043:2010 by Kenya Accreditation Service (KENAS) which demonstrates the organization's technical competence to provide EQA services. The accreditation status has enabled the organization to build and improve a quality management system that forms an intrinsic component of our day to day operation.

1.1 The PT Programs Offered Include:

- Clinical Chemistry
- Hematology
- Immunology
- Parasitology
- Bacteriology
- Virology
- Lymphocyte Immunophenotyping
- Nucleic Acid Testing
- Mycology
- Clinical Microscopy
- Coagulation Blood Screening

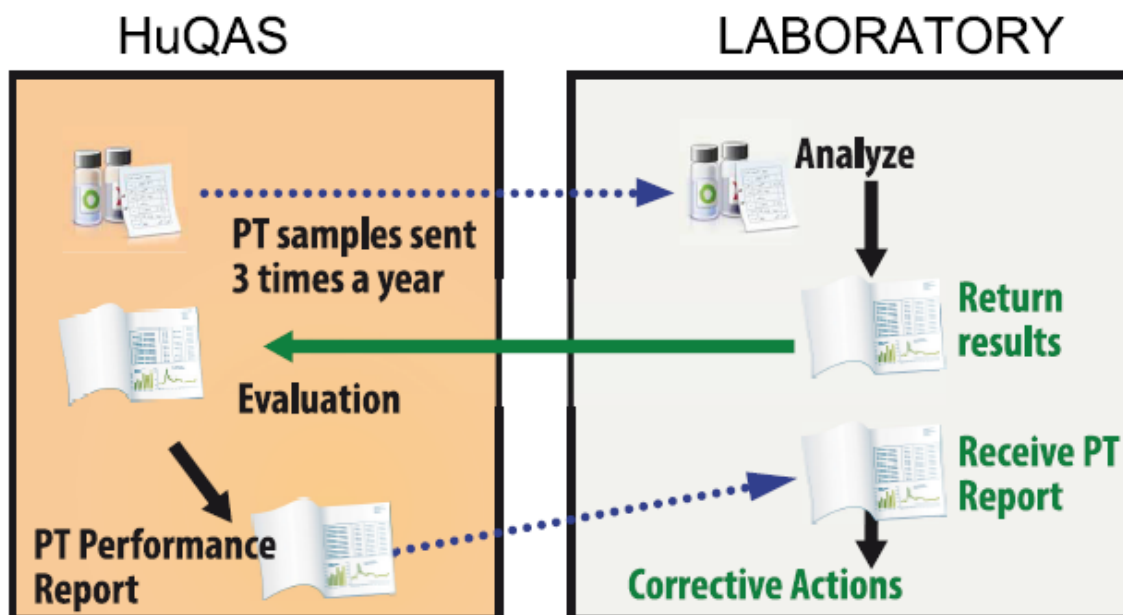
1.2 Customer Support.

The process of registration begins with communication to HuQAS your intentions of joining the External Quality Assessment programs as explained on our catalogue. You can contact HuQAS registration team via email and phone as follows;

email: huqas@huqas.org and telephone +254 20 354 2483.

The HuQAS Registration team will guide you on the processes to undertake to complete the registration.

2.0 HuQAS PT DESIGN



3.0 HuQAS INFORMATICS SYSTEM (HIS)

HuQAS Informatics System (HIS) is a robust EQA management system fashioned to undertake the following EQA activities:

- Registration management, which includes the following; Users, Instruments, reagents, methods and sub methods for correct peering and evaluation of results.
- Results Submission
- Generation of reminders for missing results.
- Publication of laboratory reports
- Access to historical results for performance evaluation overtime.

3.1 Software Requirements

To use the HuQAS Informatics System you need Chrome Browser or Mozilla Browser for best use. Internet Explorer browsers not supported.

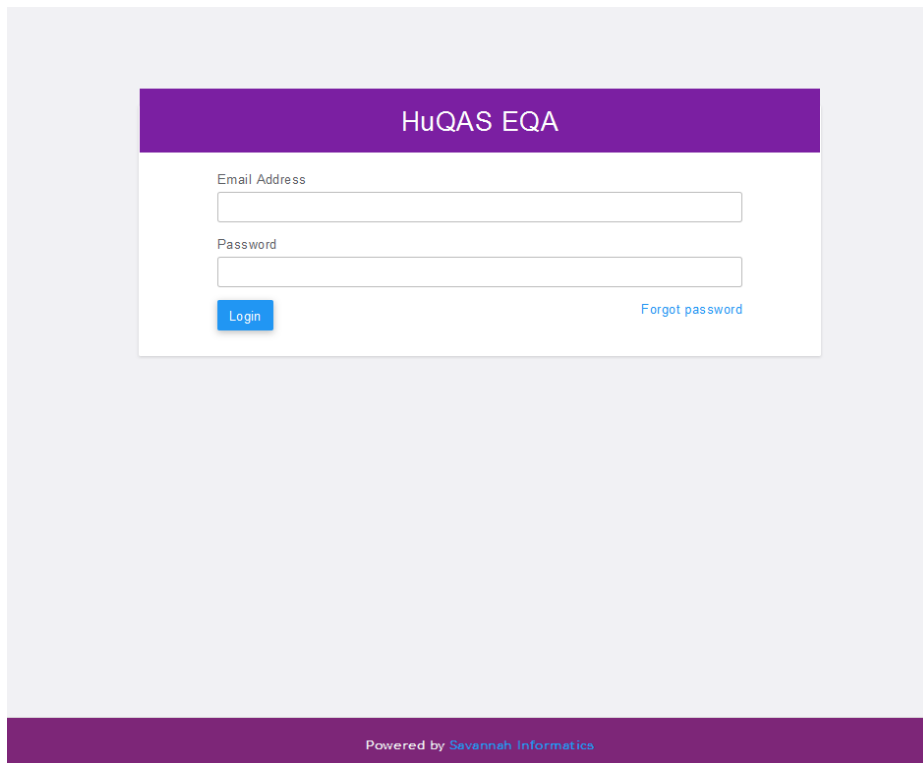
To view all downloadable documents and reports, you need Adobe Acrobat Reader 9.0 or higher.

3.1.1 Tips to the HuQAS Informatics System.

Clear your temporary internet files and cookies from your computer and browser. Cookies stored in your computer interfere with accessing information on the system.

4.0 HOW TO LOGIN IN TO THE HuQAS INFORMATICS SYSTEM.

1. Go to eqa.huqas.org
2. View a screen shot of the login page below.
3. Use the email and password sent to you by the HuQAS Support team.

A screenshot of the HuQAS EQA login page. The page has a purple header with the text "HuQAS EQA". Below the header is a white login form with two input fields: "Email Address" and "Password". Below the "Email Address" field is a blue "Login" button. To the right of the "Login" button is a blue link that says "Forgot password". At the bottom of the page, there is a purple footer with the text "Powered by Savannah Informatics".

HuQAS EQA

Email Address

Password

Login

[Forgot password](#)

Powered by Savannah Informatics

4.1 What Lies Ahead After Log In

- Managing lab users
- Managing instruments and methods the laboratory uses.
- Managing program analytes.
- Entering the results for each sample during a test event.
- Accessing reports.
- Viewing summary through dashboard.

5.0 MANAGING LAB USERS

Clicking on the **Your Name – Select Profile** this will bring you all the users currently in the account for the specific laboratory. To add a new user select the



Clicking the add  button opens up a tab where a new lab user can be added.

Enter the appropriate details of the user then click the  button afterwards. If you make the new user an Administrator he/she will have the same capability of accessing/deleting a user. If you want to limit these rights do not select the new user as an administrator.

From the user list page, click the **pencil** button against every user to open up the edit page for the user. Edit the details then click the  button.

USER 98

Lab Admin for Test Lab 54



Summary

- Test Lab 54
- Lab Admin
- Billing Contact
- user_98@huqas.o ...

Basic Details

Lab Users

Lab Users



Michael Odhiambo (michael@lab.com)
Lab Admin, ✓ Billing Contact

Edit lab
user
details



User 98 (user_98@huqas.org)
Lab Admin, ✓ Billing Contact



6. MANAGING LABORATORY INSTRUMENTS

6.1 Viewing Instruments

Clicking the **Instruments** link at the top navigation bar loads the Instruments page with a list of the lab's registered instruments.

Lab Instruments				
Lab Instruments				
Registered Instruments				
Name	Model	Nickname	In Use	
Manual Determination	Ultra-Spectrophotomer	Ultra-Spectrophotomer	✓	
Manual Determination	Manual Determination	manual	✓	
Page 1 / 1				

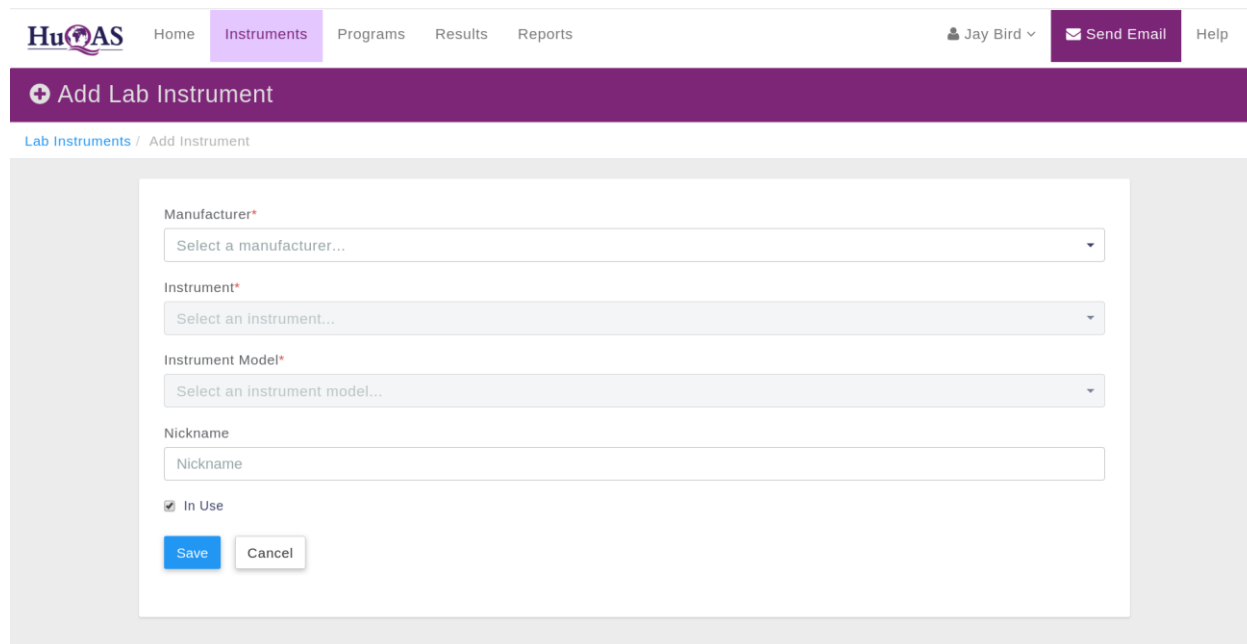
The top-right area of the page title area has a **plus** button for registering new instruments under the laboratory.

Editing an instrument's details is done by clicking the **pencil** button.

Add instrument		
Nickname	In Use	
Ultra-Spectrophotomer	✓	
manual	✓	
Edit instrument		

6.2 Adding Instruments

When the **add instrument** button is clicked, an empty form is loaded which requires sequential entry to register a new instrument under a laboratory. All fields except for the nickname are required. If the checkbox **In Use** is checked, it means the instrument actively in use in the laboratory, unchecking it means that it has been inactivated.



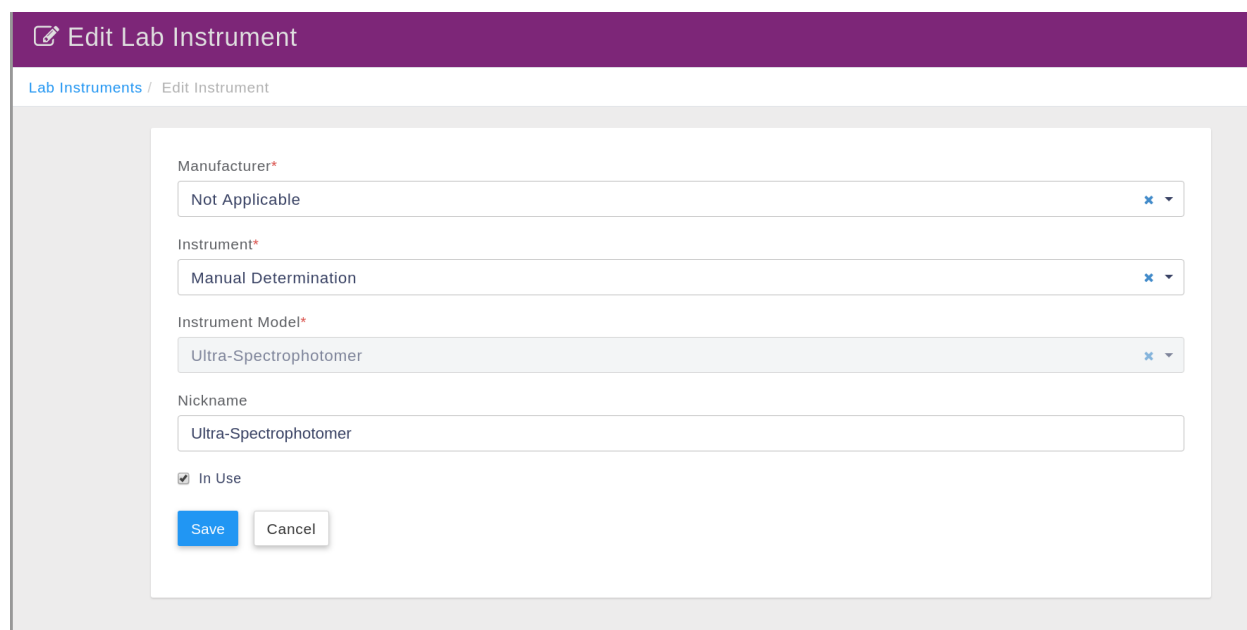
The screenshot shows the 'Add Lab Instrument' form in the HuQAS system. The form is located within a purple header bar that reads 'Add Lab Instrument'. Below the header, there is a breadcrumb trail: 'Lab Instruments / Add Instrument'. The form itself is a white box with a light gray border. It contains the following fields:

- Manufacturer***: A dropdown menu with the placeholder text 'Select a manufacturer...'.
- Instrument***: A dropdown menu with the placeholder text 'Select an instrument...'.
- Instrument Model***: A dropdown menu with the placeholder text 'Select an instrument model...'.
- Nickname**: A text input field with the placeholder text 'Nickname'.
- In Use**: A checkbox that is currently checked.
- Buttons**: Two buttons at the bottom: 'Save' (blue) and 'Cancel' (white with gray border).

6.3 Editing Instruments

The **pencil** button opens up the instrument form but prefilled with the details of the associated instrument. It is possible to edit the instrument and then save the changes by clicking the

 button.



The screenshot shows the 'Edit Lab Instrument' form in the HuQAS system. The form is located within a purple header bar that reads 'Edit Lab Instrument'. Below the header, there is a breadcrumb trail: 'Lab Instruments / Edit Instrument'. The form itself is a white box with a light gray border. It contains the following fields:

- Manufacturer***: A dropdown menu with the value 'Not Applicable' and a blue 'x' icon to clear the selection.
- Instrument***: A dropdown menu with the value 'Manual Determination' and a blue 'x' icon to clear the selection.
- Instrument Model***: A dropdown menu with the value 'Ultra-Spectrophotomer' and a blue 'x' icon to clear the selection.
- Nickname**: A text input field with the value 'Ultra-Spectrophotomer'.
- In Use**: A checkbox that is currently checked.
- Buttons**: Two buttons at the bottom: 'Save' (blue) and 'Cancel' (white with gray border).

7.0 MANAGING PROGRAMS ANALYTES

7.1 Viewing Programs and Its Analytes

The **Programs** link on the top navigation opens up a page with the analytes for the laboratory's subscribed programs. Clicking a program on the left loads it's analytes on the table on the right. The **plus** button above the table is used to add more analytes in the selected program. The **pencil** button on the right of every analyte is used to edit its respective analyte.

Programs						
Programs						
Programs	Analytes					
Bacterial Identification	Analyte	Instrument	Reagent	Method	Active	
Basic Chemistry	Antimicrobial Susceptibility	Ultra-Spectrophotometer	BioMerieux Vitek 2 CAT# Not applicable	Broth	✓	
Cryptococcus Antigen	Bacterial Identification	Manual Determination	Manual	Not Applicable	✓	
HIV						
Malaria						
Mycobacterium acid fast stain						
Parasite Identification						

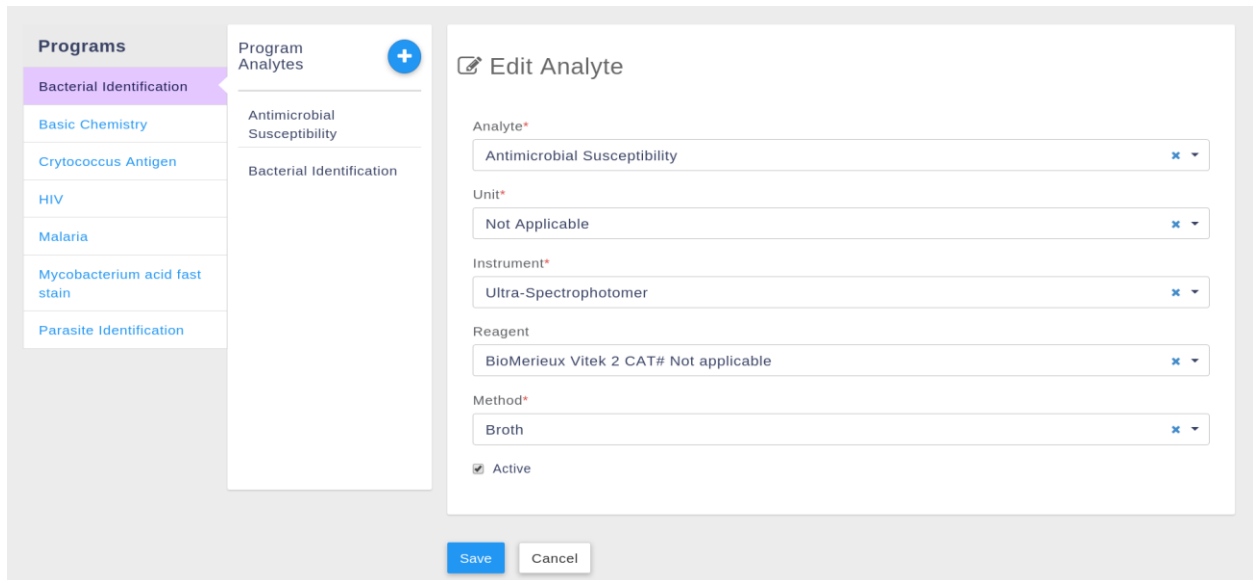
7.2 Adding Analytes to A Program

When the **plus** button is clicked, an empty form is loaded and the details for a new analyte can be entered. The details require to be filled sequentially. If the analyte already exists in the program an error is shown.

Programs Bacterial Identification Basic Chemistry Cryptococcus Antigen HIV Malaria Mycobacterium acid fast stain Parasite Identification	Program Analytes Antimicrobial Susceptibility Bacterial Identification	+ Add Analyte Analyte* Select a analyte... Unit* Select a unit... Instrument* Select an instrument... Reagent Select a reagent... Method* Select a method... ☒ Active Save Cancel
--	---	---

7.3 Editing Analytes of A Program

When the **pencil** button is clicked, the respective analyte is loaded and the details of the analyte are prefilled. Any changes can be made to the analyte then saved by clicking the  button.



Programs

- Bacterial Identification
- Basic Chemistry
- Cryptococcus Antigen
- HIV
- Malaria
- Mycobacterium acid fast stain
- Parasite Identification

Program Analytes

- Antimicrobial Susceptibility
- Bacterial Identification

Edit Analyte

Analyte*
Antimicrobial Susceptibility

Unit*
Not Applicable

Instrument*
Ultra-Spectrophotomer

Reagent
BioMerieux Vitek 2 CAT# Not applicable

Method*
Broth

☒ Active

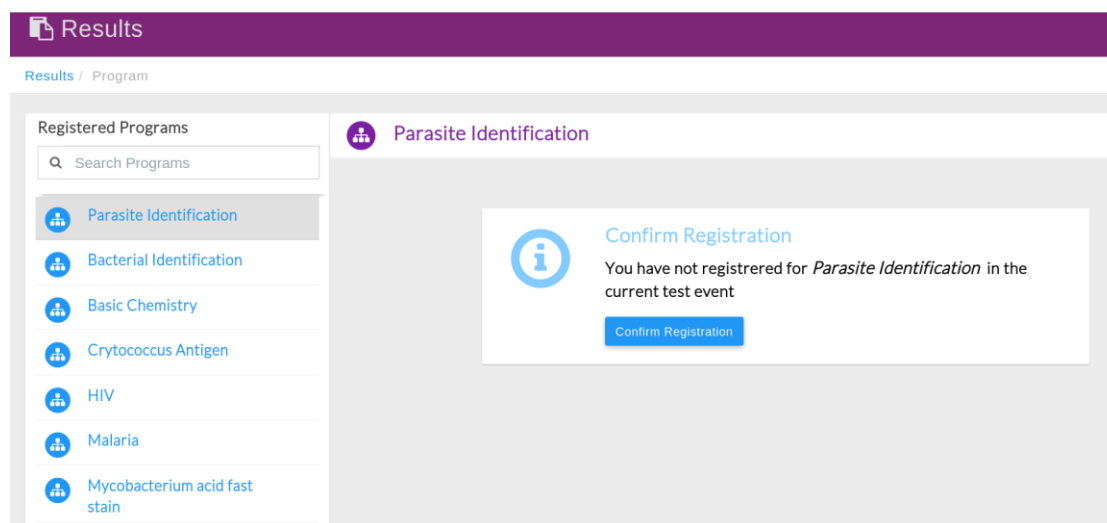
Save **Cancel**

8.0 ENTERING RESULTS OF AN OPEN TEST EVENT

There are qualitative and quantitative programs. Qualitative results are entered differently from how quantitative results are entered. Before entering results, one must confirm the registered programs and the analytes used in the program.

8.1 Confirming Registered Programs for a Test Event

The **Results** link on the top navigation opens up a page with the registered programs. Before entering the results for each program, there is a prompt to confirm the registration of the program.

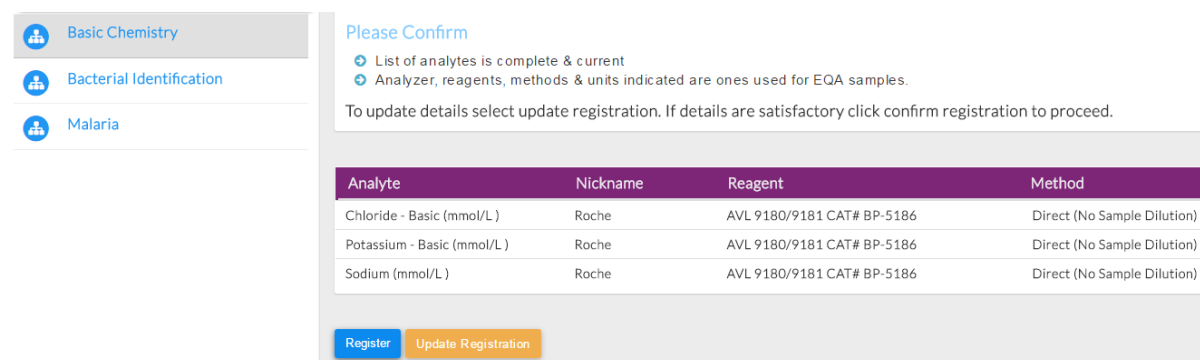


The screenshot shows the 'Results' page with a sidebar for 'Registered Programs'. The 'Parasite Identification' program is selected. A modal window prompts the user to 'Confirm Registration' for 'Parasite Identification' in the current test event, with a 'Confirm Registration' button.

8.2 Confirming Analytes before Entering Results

Right after confirming the program, confirm the list of analytes listed under the program. The lab analytes can be updated at this point before confirming the registration of the program in the test event by clicking **Update Registration**. This will open up the screen for programs as

explained in the previous section. If there is no need to update the analytes, clicking **Register** will attach the program analytes listed to the open test event.



The screenshot shows the 'Please Confirm' screen. It includes a list of analytes and a table with columns: Analyte, Nickname, Reagent, and Method. At the bottom, there are buttons for 'Register' and 'Update Registration'.

Analyte	Nickname	Reagent	Method
Chloride - Basic (mmol/L)	Roche	AVL 9180/9181 CAT# BP-5186	Direct (No Sample Dilution)
Potassium - Basic (mmol/L)	Roche	AVL 9180/9181 CAT# BP-5186	Direct (No Sample Dilution)
Sodium (mmol/L)	Roche	AVL 9180/9181 CAT# BP-5186	Direct (No Sample Dilution)

8.3 Confirming Sample Conditions.

On this next page you will need to comment on the condition of the samples received for the particular program by giving the date and providing a comment after clicking . Check the Samples are in Good Condition if the samples were in Good Condition.

Registered Programs

Bacterial Identification

Basic Chemistry

Malaria

Bacterial Identification

Sample Conditions

Indicate the date **Bacterial Identification** Program samples were received, their condition and any additional comment if any.

Date Received (Jul 1, 2016)*:

Comment

☒ Samples are in Good Condition

8.4 Viewing Qualitative Results List

After commenting on the conditions of the samples, the results for the samples can be entered. Programs that have qualitative results are entered by clicking on the red circles with the sample

name. Once results have been added, the  circles turns  this signals complete entry of the results.

Registered Programs

Malaria

Bacterial Identification

Basic Chemistry

Malaria

Enter Results

Analyte	Unit	A	B	C	D	E
Malaria Parasite Detection and Identification	Not Applicable					

Results Submitted By :

Lab Technician :

Lab Technician

Supervisor :

Supervisor

Date Submitted :

Date Submitted

8.5 Viewing Quantitative Results List

Programs with quantitative results are entered by clicking the  with the sample name.

Registered Programs

Search Programs

Basic Chemistry

Basic Chemistry

Reverse Registration

Enter Results

A

B

C

D

E

Analyte	Unit					
Uric Acid - Basic	micro-mol/L	124.30	-	-	-	-
Urea/Urea Nitrogen - Basic	mmol/L	54.00	-	-	-	-
Triglycerides - Basic	mmol/L	6.00	-	-	-	-
Sodium	mmol/L	545.00	-	-	-	-
Potassium - Basic	mmol/L	57.00	-	-	-	-
Gamma Glutamyltransferase - Basic	U/L	456.00	-	-	-	-

8.6 Entering Quantitative Results List

Each sample of a given analyte has its results entered and a result code added. Ensure you choose an OK option in Result Code after every Response Entered.

NOTE: If a Result is NOT MARKED “OK” it will not be analyzed.

Results / Program / Quantitative Results

5TH TEST EVENT

Registered Programs

Search Programs

Basic Chemistry
Crytococcus Antigen
HIV
Malaria
Mycobacterium acid fast stain

Basic Chemistry

Reverse Registration

Sample A

Analyte	Unit	Response	Result Code
Uric Acid - Basic	μmol/L	40.0000	Select a Result Code...
Urea/Urea Nitrogen - Basic	mmol/L	0.0000	ABOVE LINEAR/DETECTION LIMIT
Triglycerides - Basic	mmol/L	0.0000	ANALYZER OUT OF SERVICE
Sodium	mmol/L	0.0000	BELOW LINEAR/DETECTION LIMIT
Protein Total - Basic	g/L	0.0000	FAILURE - EXCLUSION REQUESTED
Potassium - Basic	mmol/L	0.0000	FAILURE TO PARTICIPATE
Glucose - Basic	mmol/L	0.0000	OK
Creatinine - Basic	μmol/L	0.0000	PENDING
Cholesterol Total - Basic	mmol/L	0.0000	REAGENT UNAVAILABLE
Cholesterol HDL - Basic	mmol/L	0.0000	PENDING
	mmol/L	0.0000	PENDING

Once the results are entered, click the  button at the bottom of the page to save the

results. If all results Codes and Responses are entered the Sample Alphabet will turn from 

to .

8.7 Entering Qualitative Results List

The sample of a given analyte has a result code added and relevant responses are selected. To select a response, click on the relevant response to select it from the available responses list and then click on the right facing arrow to add it as a response.

The screenshot shows the 'Malaria Parasite Detection and Identification' interface for 'Sample A'. On the left, a sidebar lists categories: Malaria (selected), Basic Chemistry, Cryptococcus Antigen, HIV, and Mycobacterium acid fast stain. The main panel has a 'Result Code' field with 'OK'. Below it, 'Available Responses' and 'Assigned Responses' sections are shown. The 'Available Responses' list includes: 'No Parasite Seen', 'No Plasmodium seen', 'Plasmodium malariae', 'Plasmodium ovale', 'Plasmodium species, refer for identification', and 'Plasmodium vivax'. The 'Assigned Responses' list shows 'Plasmodium falciparum'. Blue arrows indicate the flow from available to assigned responses. At the bottom, there are 'Save' and 'Cancel' buttons.

Once the responses have been selected, click the  button to save the responses.

9.0REPORTS

9.1Viewing Test Event Reports

Clicking on the **Reports** link loads a page where reports are generated by picking the test event and lab program of interest from the left.

The screenshot shows the 'Reports' page. At the top is a purple header with a document icon and the word 'Reports'. Below this is a light gray bar with the word 'Reports'. On the left, under the heading 'Report Generation', there are two dropdown menus: 'Test Event' with the placeholder text 'Select a test event...' and 'Lab Program' with the placeholder text 'Select a lab program...'. To the right of these menus is a blue bar with a white arrow icon and the text 'Please select a test event and lab program from the left'.

After picking a test event and lab program, click on either lab report or participation statistics to view them respectively.

The screenshot shows the 'Reports' page with the 'Test Event' dropdown menu set to '1st Test Event 2015' and the 'Lab Program' dropdown menu set to 'Bacterial Identification'. To the right of these menus are two buttons: 'Lab Report' with a blue document icon and 'Participation Statistics' with a green bar chart icon.



10. The Dashboard

The dashboard contains details about the **current test event**, including **sample shipment**, **Event start date/end date**, **Test event result submission progress** and **test report release**.

The screenshot shows the HuQAS Dashboard. At the top is a navigation bar with the HuQAS logo, a 'Home' button, and links for 'Instruments', 'Programs', 'Results', and 'Reports'. On the right of the navigation bar are links for 'Your Lab Name', 'User 2', and icons for email and help. Below the navigation bar is a purple header bar with a 'Dashboard' button. The main content area is titled 'Dashboard' and contains the following sections:

- 1ST TEST EVENT 2016**: A section titled 'Below is the PT Scheme schedule showing relevant dates and some downloadable documents.' containing a 'PT Scheme Calendar' with four colored boxes: 'Sample Shipment' (01/06/2016), 'Start Date' (30/06/2016), 'End Date' (02/08/2016), and 'Test Report Release' (31/08/2016). Below the calendar is 'PT Scheme Information' with three download buttons: 'HuQAS Catalogue', 'Performance Evaluation Criteria', and 'User Guide'.
- YOUR LAB NAME**: A section titled 'Participation, Result Submission & Account Status' containing a box for 'BACT435 | Bacterial Identification' with 'Fully Paid: ✓' and 'Validity: Dec 31, 2016'. To the right of this box is a red arrow pointing to a download icon, and a 'Pending Registration' button.

Downloads for the **HuQAS Catalogue**, **Performance Evaluation Criteria**, **User Guide** and **Sample handling** for each program you're enrolled in can be downloaded from this dash board.

EVALUATION CRITERIA.

Quantitative Analytes.

Participating laboratories are assessed on their deviation from a consensus performance of grouped peers (*or nearest neighbors*), with a numerical criterion which is used to decide whether or not the deviation represents cause for concern.

Participants who have a large deviation (*large z -score + or - deviation*) from the mean are deemed as outliers and are graded "**NOT ACCEPTABLE**". An outlier is a member of a set of values which is inconsistent with other members of that set.

Grouped Peers (or nearest neighbors) are categorized into three:

1. Method Peer.

This group defines basic procedure or methodology principles, for example immunoassay, kinetic rate, no cofactor.

2. Instrument Peer.

This group defines basic results grouped for one particular instrument manufacturer.

3. All Method Peer.

This group incorporates all results for a particular analyte.

A performance score will be calculated for each laboratory, which provides an overview performance of a parameter for every participating laboratory.

Statistical guidance of the data analysis is from ISO 13528:2015 and ISO/IEC 17043:2010 informs the implementation on the requirements for the statistical design, validation of proficiency test items, review of results, and reporting summary statistics.

ISO 13528:2015 also includes statistical techniques notably the ISO 5725 series of standards on Accuracy: trueness and precision.

Quantitative assays are based on consensus mean, but where the number of participants in a peer group is below 15, and then the assigned value is used.

1. Peer group strategy:

HuQAS's grading algorithm chooses the group that is lowest on this list, where n is equal to or greater than 15 (as long as that level is appropriate for the analyte).

- All method group (AM): encompasses all results for a particular analyte.
- Method group (ME): this group defines basic methodological principles, for example immunoassay, kinetic/rate.

EVALUATION CRITERIA.

- Instrument Model (ID): Groups results from particular instrument models.

Evaluation is based on **+/- 2 Standard Deviations** as prescribed in ISO 13528:2015.

2. Statistical analysis of participant data (review for acceptability):

- Participant results
- N (number in peer group)
- Standard Deviation (SD)
- Coefficient of Variation percent (CV %)
- Cycle grade
- Mean
- Z-Score

3. Measures to limit the imprecision/inaccuracy of target values:

Robust statistics are used.

Qualitative Analytes.

The Qualitative assays are determined by the HuQAS secretariat through expert laboratories.

1. Peer group strategy:

HuQAS grading algorithm is based on expert laboratory opinions, HuQAS Technical team and experts' concurrence.

The following are highlighted where necessary

- Method group (ME): this group defines basic methodological principles,
- Reagent (RE): this criteria groups result for reagents having the same catalog number.

2. Statistical analysis of participant data (w/ review for acceptability):

- Participant results
- N (Statistical Count)
- Cycle grade
- Acceptable results
- Pass rate

3. Measures to limit the imprecision/inaccuracy of target values:

Prior to publication of participant results, each challenge for this analyte is reviewed for its acceptable/unacceptable rate. Internal administrative reports are generated and maintained to allow a comparison of acceptable/unacceptable rates over time.

Quantitative Report Interpretation.

All text data are presented in a single portrait page format for easy interpretation and reference of each parameter

Your Report Details.

Program	Basic Chemistry (H35BCHE)
Laboratory	Your Laboratory (HUQ0000)
Report Number	001 (FINAL REPORT)
Test Event	TEST EVENT 2017

YOUR LAB'S DATA

Report Evaluation Details

Analyte: Cholesterol HDL - Basic

Instrument Model: Fujifilm DRI-CHEM NX500/500i

Method: Dextran Sulphate (50K)

Peering By: Dextran Sulphate (50K) (METHOD)

Your Responses are available for you with a z - score and your grade based on the z - score.

Sample	Result (mmol/L)	Result Code	z-Score	Grade / Comment
A	2.85	OK	1.89	ACCEPTABLE
B	2.85	OK	1.69	ACCEPTABLE
C	2.84	OK	2.07	WARNING
D	2.85	OK	0.35	ACCEPTABLE
E	2.85	OK	0.35	ACCEPTABLE

Z- Score Interpretation.

For a z - score between $|z| \leq \pm 2.0$ is **ACCEPTABLE**

For a z - score between $\pm 2.0 < |z| < \pm 3.0$ is a **WARNING SIGNAL**

For a z - score between $|z| \geq \pm 3.0$ is **NOT ACCEPTABLE**

How to Calculate your z - score:

$$Z \text{ scores} = \frac{X_{pt} - X_i}{\sigma_{pt}}$$

X_{pt} - Your result

X_i - Peer Group Mean

σ_{pt} - Peer Group SD

The Z - Score is an expression of the distance your result is from the group mean. The value calculated is the number of standard deviations your result is from the peer group mean.

Quantitative Report Interpretation.

All text data are presented in a single portrait page format for easy interpretation and reference of each parameter

Results Codes

EC1: ABOVE LINEAR / DETECTION LIMIT

EC2: ANALYZER OUT OF SERVICE

EC3: BELOW LINEAR / DETECTION LIMIT

EC5: FAILURE TO PARTICIPATE

EC11: NOT DETECTED

EC6: OK

EC7: PENDING

EC8: REAGENT UNAVAILABLE

EC9: SPECIMEN NOT APPROPRIATE

EC10: TESTING SUSPENDED DURING TEST EVENT

Comparative Group Data (In your laboratory Units)

St. Count is the Number of laboratories who returned results in time for evaluation

Mean Average performance of a given sample result.

Std. Dev It indicates the variability or dispersion around the mean.

COMPARATIVE GROUP DATA IN (mmol/L)				
St. Count	Mean	Std. Dev.	Std. Error	CV (%)
50	1.88	0.51	0.1	27.4
50	1.98	0.51	0.1	25.97
50	1.87	0.47	0.09	25.2
50	2.84	0.02	0.01	0.73
50	2.84	0.02	0.01	0.73

Score: 80%

Std Error - Level of Uncertainty associated with the mean for comparison

Acceptable Range - Range within which the results must fall for an acceptable result.

Score - Indicates an average percentage score based on the number of samples.

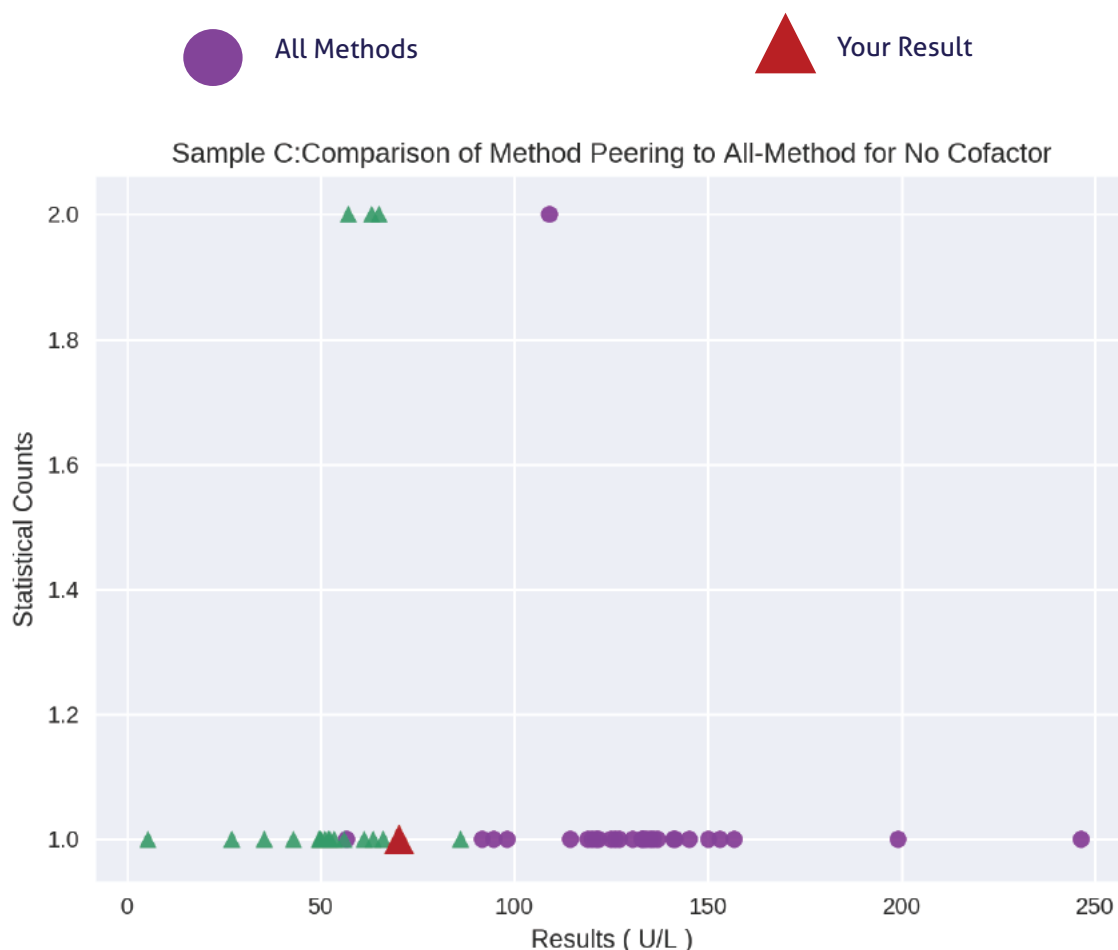
Standard Deviation (Std Dev.)

The standard deviation is related to the spread or distribution of control results about the expected mean.

It would be expected that 68.2% of the observed results will be within plus / minus 1s of the mean; 95.5% within plus/minus 2s of the mean, and 99.7% within plus/minus 3s of the mean.

Quantitative Report Interpretation.

The Scatter plot is intended for a quick visualisation of how your lab's result falls into the overall picture of:



A cluster of participating labs gave a response in the range of 110 U/L and 160 U/L under ALL Method (in ●).

Another cluster for the method "No Cofactor" (in ▲), are labs that had a similar method as your lab.

The scatter plot visually indicates the variation of your laboratory's method or instrument from your peers, also in comparison with the ALL Method.

Qualitative Report Interpretation.

YOUR LAB'S DATA

Your Report Details.

Your performance for qualitative multiple samples is presented in a convenient single report.

Analyte: Malaria Species Identification and Quantification

Instrument Model: Manual Determination

Method: Manual

Analyte: Malaria Species Identification and Quantification

Instrument Model: Manual Determination

Method: Manual

Sample	Response(s)	Result Code	Grade
A	Plasmodium ovale	OK	NOT ACCEPTABLE
B	Plasmodium falciparum	OK	ACCEPTABLE
C	Plasmodium malariae	OK	ACCEPTABLE
D	No Parasite Seen	OK	NOT ACCEPTABLE
E	Plasmodium falciparum	OK	ACCEPTABLE

Comparative Group Data (In your laboratory Units)

Frequency is the Number of laboratories who returned results in time for evaluation.

Acceptable Results are the allowed or suitable responses for a given sample.

Score the number of points achieved in a particular analyte.

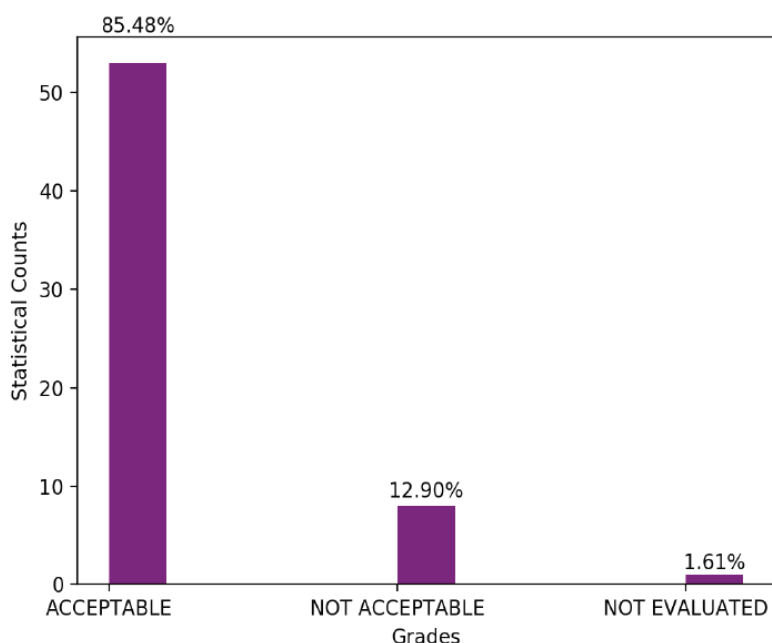
COMPARATIVE GROUP DATA

Sample	Acceptable Results	Frequency
A	No Parasite Seen	62
B	Plasmodium falciparum	62
C	Plasmodium malariae	62
D	Plasmodium ovale	62
E	Plasmodium falciparum	62

Score: 60%

Qualitative Report Interpretation.

Graphical representation of the overall summary performance of results for the Analyte/Parameter



In the above graphical presentation 88.48% of a total of 62 participants received and ACCEPTABLE response(s). 12.9% of the total participant received a NOT ACCEPTABLE response. For the NOT EVALUATED participants these refer to Error Codes that were entered for example; TESTING SUSPENDED DURING TEST EVENT, FAILURE TO PARTICIPATE, etc.

APPENDIX 4.

Laboratory Results Summary Interpretation Guidelines

Laboratory	Lab ID #	Facility:								Page					
Test Event	XXXXXX								Print Date						

Program	Lipids (LIPDxxx)									Results Deadline						
Subscription ID Result AP Code			Peer Group Statistics						Peer Group Code: Description	Evaluation Criteria						
			Actual Results Count	Statistical Count	Mean	SD	CV (%)	SDI		Flag	Statistical Count	PI	Targets	Range	Description	
1	3		4	5	6	7	8	9	10		11	12	13	14	15	
Cholesterol- Total 2																
mmol/L	A		357	28	4.463	0.12	2.7	2.3	ID: Beckman LX-20		257	0.7	4.45	4.04 – 4.86	Reference Value ± 9%	
	4.74															
	B		357	27	5.002	0.085	1.7	4.6	ID: Beckman LX-20		257	0.7	5.07	4.61 – 5.53	Reference Value ± 9%	
2100	5.39															
	C		357	28	6.23	0.163	2.6	1.7	ID: Beckman LX-20		257	0.3	6.35	5.77 – 6.93	Reference Value ± 9%	
	6.50															

*please note that there are SD, CV(%) and SDI also under Evaluation Criteria

DEFINITIONS:

- 1 Individual analyte and unit of measure.
- 2 Identification code of each sample.
- 3 The test result submitted by your laboratory.
- 4 Total number of participants measuring that analyte.
- 5 Number of participants in peer group.
- 6 The mean of the peer group.
- 7 The standard deviation of the peer group.
- 8 The coefficient of variation of the peer group data.
- 9 Standard Deviation Index. The SDI is an expression of the distance your result is from the group mean. The value calculated is the number of SDs your result is from the group mean.

$$SDI = \frac{\text{Your Result} - \text{Peer Group Mean}}{\text{Peer Group SD}}$$

Evaluation Flags

- ❖ **AP** - This symbol indicates results submitted with an analytical problem code.
- ❖ **NE** - This symbol indicates results not evaluated.
- ⊗ This symbol indicates results that have exceeded evaluation criteria.
- ⚡ This symbol indicates results that are statistical outliers and have been excluded from the peer group statistics (Tukey's Outlier Test).

Analytical Problem (AP) Codes

- 11 This indicates that you have submitted a **below linear /detection limit** problem code instead of a result.
- 22 This indicates that you have submitted an **above linear /detection limit** problem code instead of a result.
- 33 This indicates that you have submitted an **analyzer out of service** problem code instead of a result.
- 44 This indicates that you have submitted an **insufficient volume** problem code instead of a result.
- 66 This indicates that you have submitted an **specimen not appropriate** problem code instead of a result.
- 77 This indicates no result has been submitted.

- 10 Analyte peer group description.
- 11 The number of participating labs evaluated with this evaluation criteria.
- 12 Performance Index $PI = \frac{(\text{lab Result} - \text{Target Value})}{\text{Accreditation Limit}}$
A value of zero indicates the result exactly equals the evaluation group mean or target value. A value between -1 and 1 indicates the result is within the evaluation range.
- 13 Target against which lab results are evaluated and are dependent on evaluation criteria used for that analyte.
- 14 The range within which results must fall for acceptable performance. Criteria for acceptable performance are defined by your regulatory agency.
- 15 Description of the evaluation criteria used to evaluate analyte performance.

Peer Group (PG) Codes

AR (All Results group): Encompasses all results for a particular analyte.

ME (Method group): This group defines basic methodological principles, for example immunoassay, kinetic/rate.

SM (Submethod group): This group further defines a particular methodological principle, e.g. immunoassay – enzymatic, immunoassay – chemiluminescent.

RM (Reagent Manufacturer group): Results for reagents using similar method/submethod from the same reagent manufacturer.

RG (Reagent Group): Results for reagents using similar method/submethod and reagent technology from the same reagent manufacturer.

RE (Reagent): Results for reagents having the same catalog number.

IM (Instrument Manufacturer group): Results for a particular instrument manufacturer.

IG (Instrument group): Results for a particular instrument series.

ID (Instrument Model group): Results for a particular instrument model.