

REPORT INTERPRETATION GUIDE

**Human Quality Assessment Services
(HuQAS)**



HuQAS EVALUATION REPORT

“.....advancing healthcare through improved laboratory testing”

This report interpretation guide aims to explain the laboratory reports and statistical evaluations to participants, providing detailed yet easy-to-read information on laboratory performance to assess the level of quality and identify areas for improvement.

HuQAS reports are designed with a user-friendly, easy to interpret per analyte format that includes a summary performance report, that includes your laboratories Overall Score per program allowing for effortless interpretation of analytical performance.

The HuQAS report not only offer a comparison of laboratory results with other laboratories using the same analytical instrument, method, or all method but also provide detailed information for comparison to other analytical instruments, and methods.

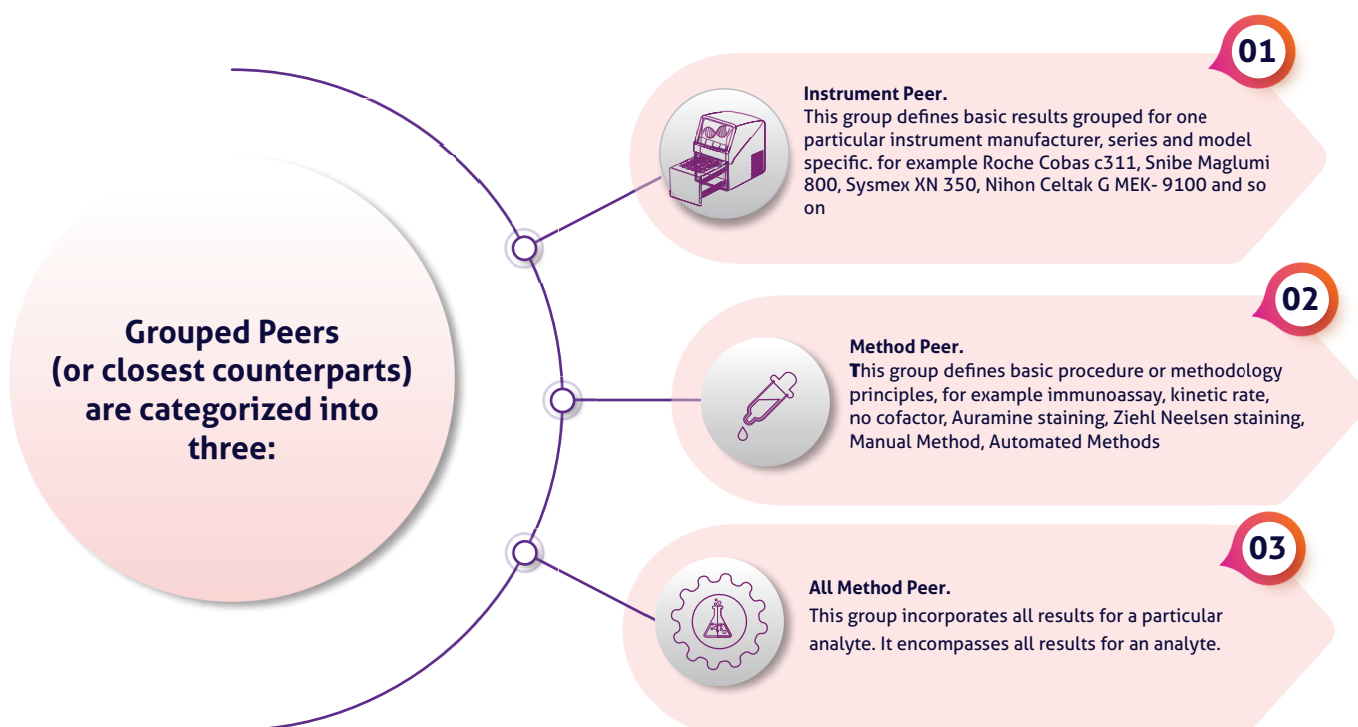
The inclusion of statistical breakdowns by all methods, your method, and, where applicable, your instrument with Robust Mean, CV, and SD to further enhance the value of your reports.

Quantitative Analytes.

In accordance with ISO 13528:2015, participating laboratories are evaluated based on their deviation from a consensus performance of clustered peers (or closest counterparts). A numerical criterion is utilized to determine if the deviation constitutes a matter of concern.

Participants with a significant deviation (large z-score with positive or negative deviation) from the mean are considered outliers and receive a **"NOT ACCEPTABLE"** grade. An outlier refers to a value within a dataset that is inconsistent with other values in the same set.

PEER GROUPING CATEGORISATION.



QUANTITATIVE LABORATORY REPORT

HUQ0001 | Basic Chemistry | Report No: 509-2-120913

C Albumin [g/L]

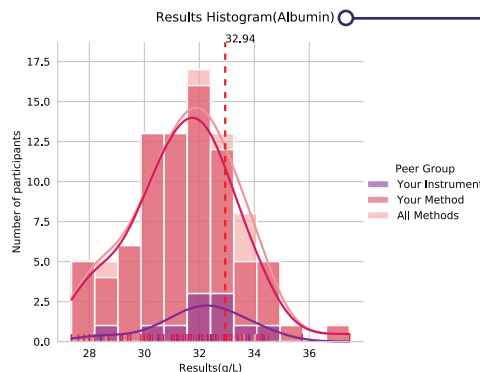
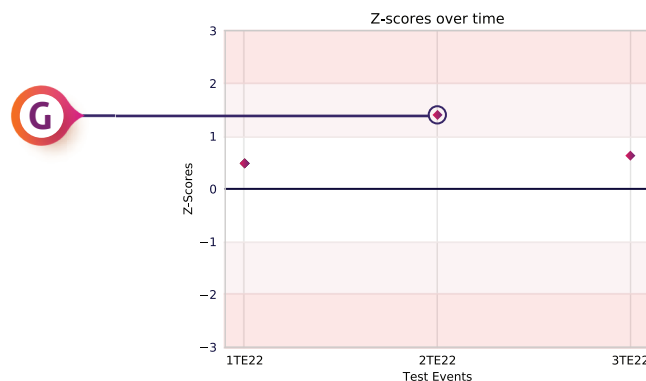
Score: 100%

D	Instrument Model:	Method:	Peering by:
	Roche Integra 400/Plus	Bromocresol Green	Bromocresol Green (METHOD)

Albumin - Sample A

E	Result	N	Mean	SD	SE	CV(%)	Z-Score	Grade
	32.94	228	31.49	2.31	0.31	7.34	0.63	ACCEPTABLE

F	Peer Group Name	N	Mean	SD	SE	CV%
	ALL	507	31.57	2.34	0.30	7.40
	Human HumaStar 100 (I)	187	30.71	2.02	0.59	6.57
	Roche Cobas c111 (I)	75	33.13	2.7	0.94	8.16
	Roche Integra 400/Plus (I)	52	32.13	1.6	0.60	4.97
	Human HumaStar 200 (I)	8	31.64	2.2	0.97	6.96



A Your Lab Code (HUQ001), the Program Name (Basic Chemistry), a unique report number that bears the test event number (509), the program ID (2) and a unique analysis report number (120913)

B An average percentage score based on the number of samples.

C Your Analyte report in your labs units of entry

D Your analyte and Your method used in results entry, and the peer group your results are represented by on section E.

E

Results: Your Result (X_i) in your units of entry,

N: Number of Participants for the analyte,

Mean: Robust Average (X_{pt}) of all participant results.

SD / σ_{pt} : Standard deviation for proficiency assessment (σ_{pt}) calculated from participants results.

S.E or U_m : Uncertainty associated with Standard Deviation of the results.

$$S.E \text{ or } U_m = \frac{1.25 \times \sigma_{pt}}{\sqrt{p}}$$

C.V: Coefficient of Variation calculated as:
 $CV = \sigma_{pt} / X_i - 100$

Z Score: measure of how many standard deviations below or above the mean a data point is.

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

F

Grade For a:

- z - score between $|z| \leq \pm 2.0$ is **ACCEPTABLE**
- z - score between $\pm 2.0 < |z| < \pm 3.0$ is a **WARNING SIGNAL**
- z - score between $|z| \geq \pm 3.0$ is **NOT ACCEPTABLE**

A performance comparison of other methods used to analyse the analyte. You can compare the Robust mean (X_{pt}), the SD (σ_{pt}), the uncertainty (of the calculated robust mean, the CV and the number of participating laboratories and results for each peer group.

G Z - Score plot over time for lab test quality control can help laboratories detect issues early, monitor their performance, and ensure consistent, accurate results.

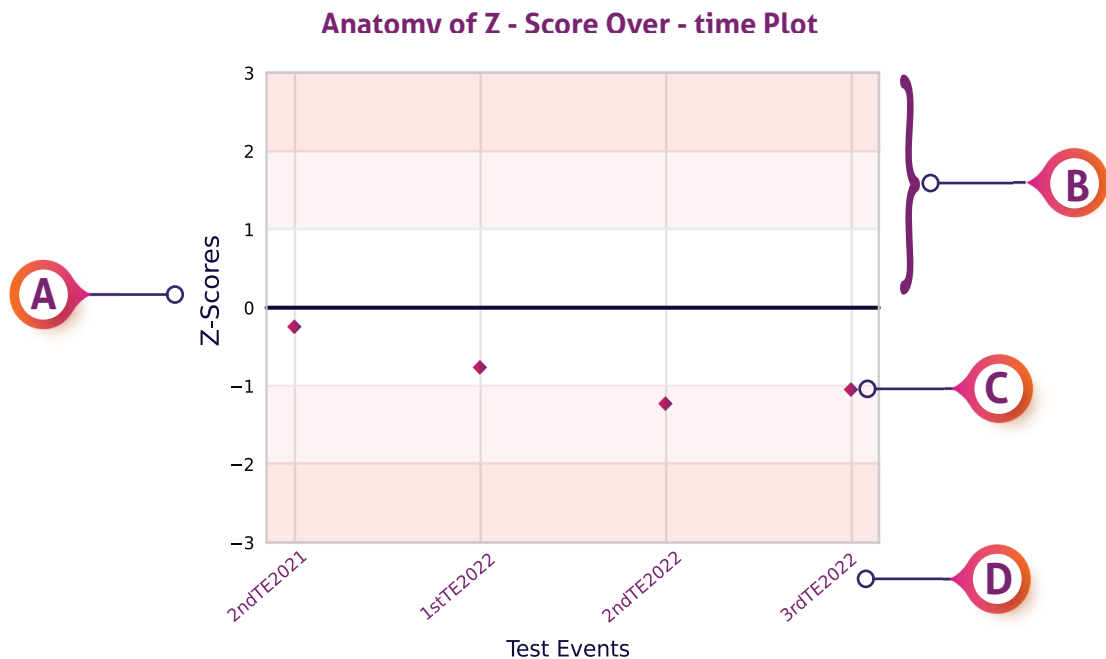
H Overlapping histograms provides a clear visual representation of data distribution and facilitates identification of trends, outliers, and potential issues.

Its useful for comparison of performance among different laboratories, methods, or instruments facilitating benchmarking and identification of best practices.

QUANTITATIVE LABORATORY REPORT

The Z - Score Plot combines performance scores over several rounds of a proficiency testing scheme.

It allows trends analysis, and other features of the results, to be identified that are not apparent when performance scores for each round are examined separately.



A Z - Score is plotted for each sample, for monthly you will receive a plot for every month of result entry. For Quarterly you will receive a plot for every analyte overtime.

C Z - Score for each event sample, current and previous events upto 12 events for monthly and 5 events for quarterly.

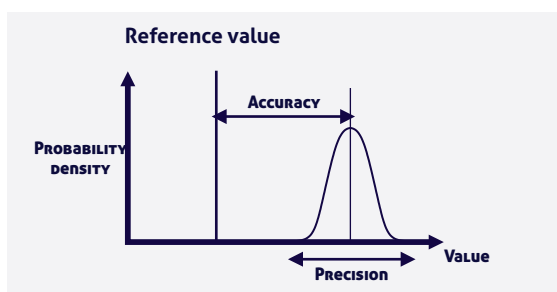
B Acceptable scores (0 - 1) having no shading, Warning scores (1 - 2) having light red shading, Not Acceptable (2 - 3) have dark red shading.

D Test Events participated only, If your lab result was not entered there will be no entry for that test event.

The Overlapping histogram shows where your result is in comparison with others in the three peers groupings of All Method, Method and Instrument Peer. (ISO 13528:2015 Clause 10.2)

A The histogram is created using actual participant results, as indicated at the X - Axis represented by singular points on the X - Axis.

A kernel density estimate (KDE) is plotted to provide a smooth curve describing the general shape of all lab results for the analyte distribution. (ISO 13528:2015 Clause 10.3)



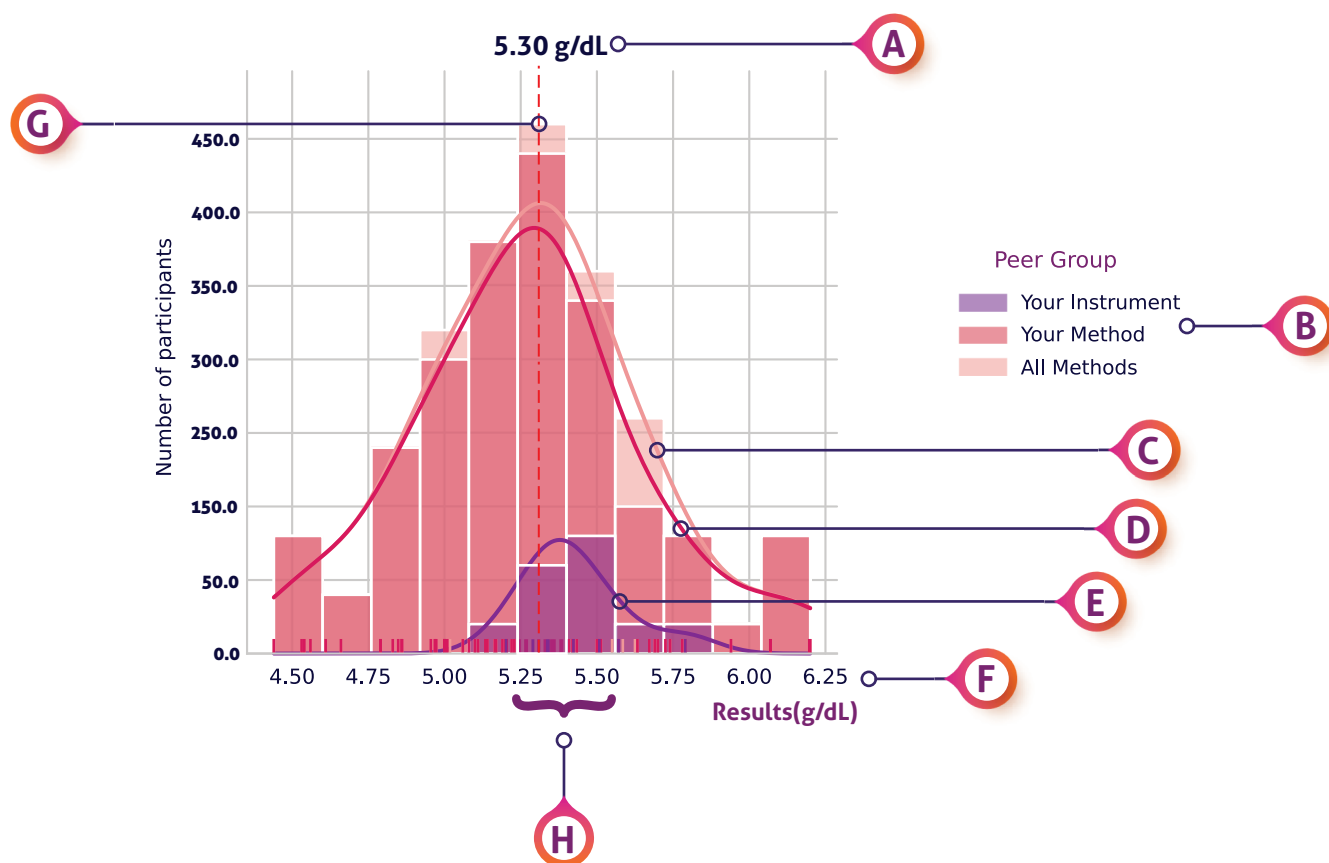
Accuracy is how close a your result is to the robust mean,

while

Precision is how close your result is to your peers.

QUANTITATIVE LABORATORY REPORT

The Anatomy of a Results Histogram



A Your result represented in your units. Your result is indicated by Red Broken Line.

B Your Instrument peer will be colored in a Light Purple, Your Method Peer will be in Red and the All Method Peer will be in light red.

C Kernel Density Curve for All Method Peer

D Kernel Density Curve for Your Method Specific Peer

E Kernel Density Curve for Your Instrument Peer

F Spread of results entered for the particular analyte.

G 450 laboratories reported values between 5.25 and 5.50 in your method peer.

H 55 laboratories reported values between 5.25 and 5.50 in your instrument peer.

QUALITATIVE LABORATORY REPORT

HUQ0000|3rdTE2020(FINAL)|Hepatitis Serology|Report No:509-10-128587

Anti-HAV -IgM

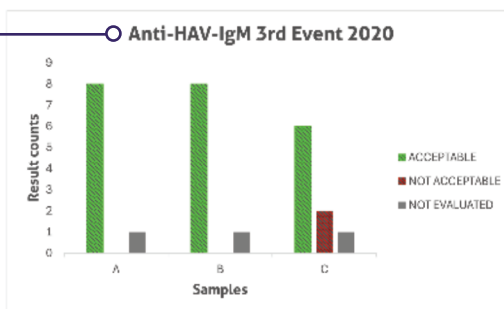
Your Score: 100%

Instrument Model:	Method:	Reagents:
Manual Determination	Double Antigen lateral flow chromatographic Immunoassay	CTK Biotech Onsite HAV-IgM/igG CAT R0090C

Sample	N	Responses	Acceptable Responses	Grade
A	98	Non Reactive	Non Reactive	ACCEPTABLE
B	98	Reactive	Reactive	ACCEPTABLE
C	98	Non Reactive	Non Reactive	ACCEPTABLE

Reagents/ Kits Performance Comparison

Reagents	N	Acc. (%)	Not Acc. (%)
CTK Biotech Onsite HAV-igM/igG CAT R0090C	56	100.0	0.0
BioMerieux Vidas HAV igM CAT #30307	24	100.0	0.0
Maglumi Anti-HAV CAT# 130210007M/130610007M	12	50.0	0.0
Autobio HAV igM CLIA Microparticles CAT# CMC0701/702/703/704/705	10	100.0	0.0
Abbott AxSYM HAVAB-M 2.0	1	100.0	0.0
Vaxpert HAV igM CAT#IHA-302	1	100.0	0.0



A Indicates a unique laboratory code (*HUQ000*), Test Event Name (*3rdTE2020*), Program Name (*Hepatitis Serology*), Unique per analysis Report Number (*509-10-128587*) and Report Status (*Interim, Final or Amended*).

B An Average percentage score based on ACCEPTABLE, WARNING and NOT ACCEPTABLE.

C Simple way to evaluate the performance of other kits, instrument, methods used to analyze the parameter.

D Bar graph indicating a quick visualization of how the lab result compared performance to other laboratories per analyte.

E Description of analyte performance against assigned grade (Acceptable, Not Acceptable). Indicating expected responses along with your lab responses and the overall "N" number of participants.

F Outlines your laboratory's Instrument models, Methods and Kits/Reagents, used in the results entry.

G An indication of the test or analyte analysed by the lab.

F Malaria Species Identification and Quantification

Your Score: 50%

Instrument Model:	Method:	Reagent:
Manual Determination	Manual	Not Applicable

Sample	N	Responses	Acceptable Responses	Grade
A	38	Plasmodium falciparum,	Plasmodium falciparum,	ACCEPTABLE
E Quantification		223	lower.L. target upper.L.	NOT ACCEPTABLE
			270.00 360.00 450.00	
B	38	Plasmodium malariae,	Plasmodium vivax,	NOT ACCEPTABLE
C	38	Plasmodium malariae, Plasmodium falciparum,	Plasmodium malariae, Plasmodium falciparum,	ACCEPTABLE

A Indicates a unique laboratory code (*HUQ000*), Test Event Name (*3rdTE2024*), Program Name (*Malaria*), Unique per analysis Report Number (*636-12-1589712*) and Report Status (*Interim, Final or Amended*).

B An Average percentage score based on ACCEPTABLE, WARNING and NOT ACCEPTABLE.

C Outlines your laboratory's Instrument models, Methods and Kits/Reagents, used in the results entry.

D Description of analyte performance against assigned grade (Acceptable, Not Acceptable). Indicating expected responses along with your lab responses and the overall "N" number of participants.

E Quantification summary performance on your laboratories that is scored against expected ranges in accordance to WHO guidelines.

F An indication of the test or analyte analysed by the lab.



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Human Quality Assessment Services (HuQAS)
P.O. Box 807 - 00600, Nairobi, Kenya
Mobile: +254 115 84 474; Tel: +254 20 354 2483
Email: info@huqas.org | huqas@huqas.org
Website: www.huqas.org