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- EDUCATION & TRAINING

Weqas Connect Lab EQA Case Studies

Gareth Davies / Sam Jones

Weqas

Summary Report

Analyte:
Overall Performance Category:
Running PI analyte –sample scores:

Standard Report

Analyte results table:
Scoring Table:
Running PI scores:
Bias Chart (Absolute):
Bias Chart (Relative):
Precision Scores:
Sample Histograms:
Method Summary Data:

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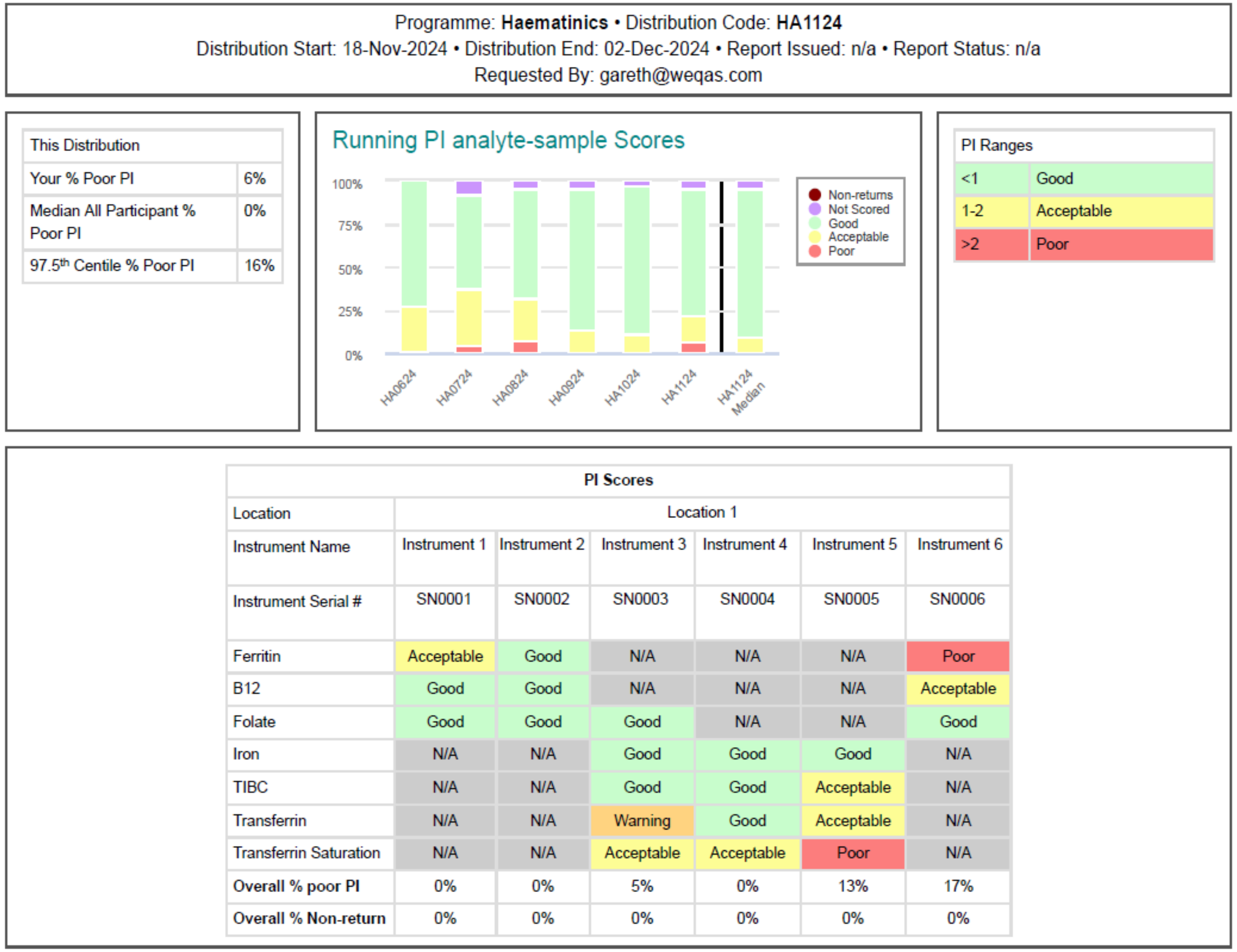
Case 1 – Haematinics - Ferritin



Programme: **Haematinics** • Distribution Code: **HA1124**
Distribution Start: 18-Nov-2024 • Distribution End: 02-Dec-2024 • Report Issued: n/a • Report Status: n/a
Requested By: gareth@weqas.com

This Distribution	
Your % Poor PI	6%
Median All Participant % Poor PI	0%
97.5th Centile % Poor PI	16%

Running PI analyte-sample Scores

PI Ranges	
<1	Good
1-2	Acceptable
>2	Poor

PI Scores						
Location	Location 1					
Instrument Name	Instrument 1	Instrument 2	Instrument 3	Instrument 4	Instrument 5	Instrument 6
Instrument Serial #	SN0001	SN0002	SN0003	SN0004	SN0005	SN0006
Ferritin	Acceptable	Good	N/A	N/A	N/A	Poor
B12	Good	Good	N/A	N/A	N/A	Acceptable
Folate	Good	Good	Good	N/A	N/A	Good
Iron	N/A	N/A	Good	Good	Good	N/A
TIBC	N/A	N/A	Good	Good	Acceptable	N/A
Transferrin	N/A	N/A	Warning	Good	Acceptable	N/A
Transferrin Saturation	N/A	N/A	Acceptable	Acceptable	Poor	N/A
Overall % poor PI	0%	0%	5%	0%	13%	17%
Overall % Non-return	0%	0%	0%	0%	0%	0%

Programme: Haematinics • **Distribution Code:** HA1124
Distribution Start: 18-Nov-2024 • Distribution End: 02-Dec-2024 • Report Issued: • Report Status: n/a

Participant Code: WQ##### • **Location:** Location 1 • **Analyser Name:** Instrument 6 • **Serial #:** SN0006
Date Samples received: n/a • Date of Analysis: n/a • Operator Details: n/a • Storage Conditions: n/a

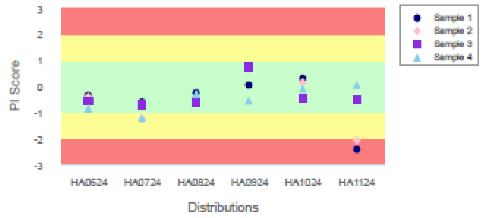
Analyte: Ferritin • **Method:** Roche Elecsys • **Kit:** Elecsys Ferritin (07027273190)

Ferritin µg/L					
	Your reported result (µg/L)		**Method: Roche Elecsys**	**Instrument Model: cobas e 801**	**Overall**
Sample 1	1282	Mean	1549.11	1534.40	1562.19
		SD	86.24	83.52	100.79
		Uncertainty	16.070	21.311	17.306
		n	45	24	53
Sample 2	998	Mean	1168.22	1150.33	1177.04
		SD	62.24	54.21	69.70
		Uncertainty	11.597	13.831	11.968
		n	45	24	53
Sample 3	15	Mean	15.83	15.61	15.69
		SD	0.82	0.79	1.06
		Uncertainty	0.152	0.200	0.182
		n	45	24	53
Sample 4	52	Mean	51.79	51.03	51.43
		SD	1.91	1.78	2.09
		Uncertainty	0.355	0.455	0.358
		n	45	24	53

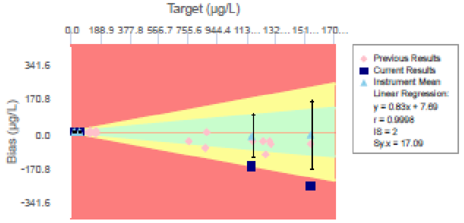
Scoring

Sample	1	2	3	4	Overall Performance
Target: (Method Mean)	1549.11	1168.22	15.83	51.79	
Weqas TAE	216.33	163.38	3.2	8.2	
PI	-2.47	-2.08	-0.52	0.05	Poor

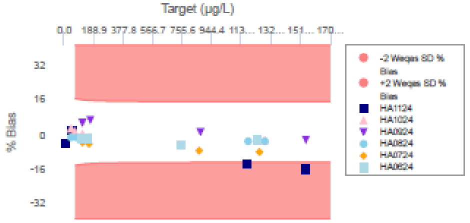
Running PI



Bias (Absolute)



Bias (Relative %)

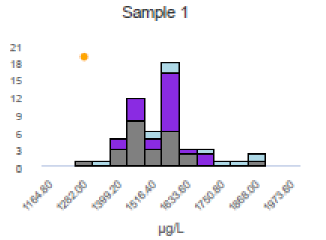


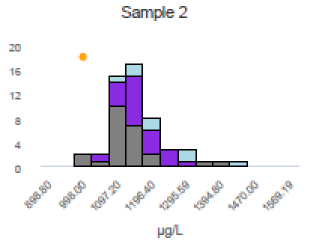
Precision

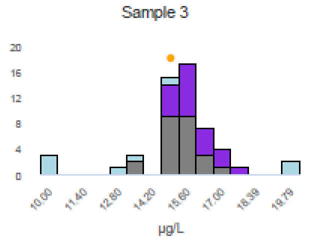
	HA0624	HA0724	HA0824	HA0924	HA1024	This distribution: HA1124
Sy.x	10.64	0.55	2.97	18.83	0.48	17.09
IS	1	0	0	3	0	2

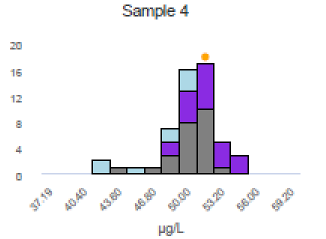
Sy.x is the average deviation from the best fit line and is an index of scatter.

IS Score	Interpretation
0 to 10	Good
11 to 150	Acceptable to Warning level
> 150	Unacceptable (incl. Curvilinear Data)









▨ All Results ▨ My Method ▨ My Instrument ● My Result

Method Summary

HA1124	Sample 1		Sample 2		Sample 3		Sample 4	
Method Name	**Mean**	**CV%**	**Mean**	**CV%**	**Mean**	**CV%**	**Mean**	**CV%**
Beckman (n=4)	1032.14	7.4	765.99	11.5	8.22	13.4	29.36	5.0
Roche cobas c (n=2)	1566.00	0.9	1198.00	0.4	14.45	6.1	49.30	0.0
Roche Elecsys (n=45)	**1549.11**	**5.6**	**1168.22**	**5.3**	**15.83**	**5.2**	**51.79**	**3.7**
Siemens Advia (n=1)	997.00	0.0	804.00	0.0	9.00	0.0	31.00	0.0
Siemens Atellica (n=1)	1290.00	0.0	952.00	0.0	9.00	0.0	31.00	0.0

There are no Weqas or Participant supplied comments for Ferritin for this distribution.

Summary Report

Analyte: Ferritin
Overall Performance Category: Poor
Running PI analyte –sample scores: mostly good, some acceptable, more poor than median

Standard Report

Analyte results table: samples 1 and 2 significant negative bias to method, instrument and overall mean. Samples 3 and 4 seem to compare well
Scoring Table: samples 1 and 2 negative red PI, samples 3 and 4 green PIs, overall poor.
Running PI scores: generally good no other poor in last 6 distributions
Bias Chart (Absolute): current results at higher concs low compared to method mean (target value, x axis) and outside instrument SDs, results in red area. previous samples at these concs good. Linear regression shows y = 0.83x + 7.69. -17% negative proportional bias, +7.69 positive constant bias.
Bias Chart (Relative): samples at higher concs in red, previous samples at these concs good
Precision Scores: Sy.x 17, IS 2, IS 0-10 = good
Sample Histograms: samples 1 and 2 negative bias compered to others, samples 3 and 4 central to normal distribution
Method Summary Data: Roche Elecsys dominant method group

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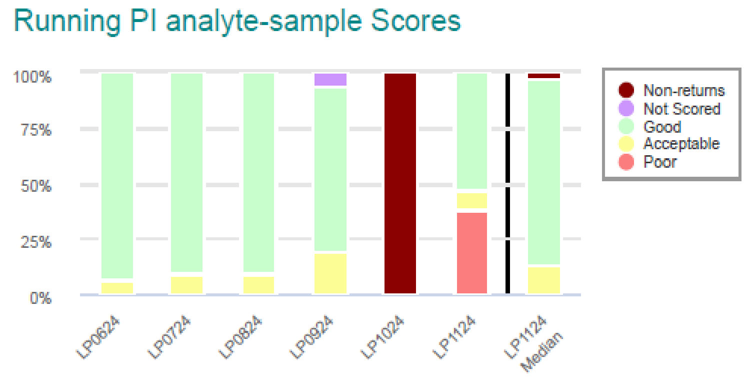
Case 2 – Lipids - Triglyceride

Programme: **Lipids** • Distribution Code: **LP1124**
Distribution Start: 18-Nov-2024 • Distribution End: 02-Dec-2024 • Report Issued: n/a • Report Status: n/a
Requested By: gareth@weqas.com

This Distribution	
Your % Poor PI	38%
Median All Participant % Poor PI	0%
97.5th Centile % Poor PI	33%


Running PI analyte-sample Scores

PI Ranges	
<1	Good
1-2	Acceptable
>2	Poor

PI Scores		
Location	Location 1	
Instrument Name	Instrument 1	Instrument 2
Instrument Serial #	SN0001	SN0002
Cholesterol	Poor	Poor
Triglyceride	Poor	Poor
HDL Cholesterol	Acceptable	Good
LDL Cholesterol	Warning	Warning
Overall % poor PI	38%	38%
Overall % Non-return	0%	0%

Programme: Lipids • Distribution Code: LP1124
Distribution Start: 18-Nov-2024 • Distribution End: 02-Dec-2024 • Report Issued: • Report Status: n/a

Participant Code: WQ##### • Location: Location 1 • Analyser Name: Instrument 2 • Serial #: SN0002
Date Samples received: 02-Dec-2024 • Date of Analysis: 02-Dec-2024 • Operator Details: n/a • Storage Conditions: -70 °C

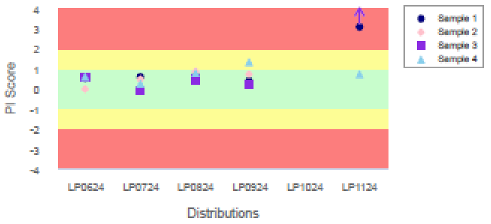
Analyte: Triglyceride • **Method:** Roche TRIGL • **Kit:** TRIGL (20767107 322)

Triglyceride mmol/L						
	Your reported result (mmol/L)		**Method: Roche TRIGL**	**Instrument Model: cobas c 501**	**Overall**	**Scoring Reference Value**
Sample 1	3.25	Mean	2.752	2.783	2.751	2.64
		SD	0.058	0.081	0.064	
		Uncertainty	0.0089	0.0262	0.0084	0.02
		n	66	15	91	
Sample 2	5.79	Mean	4.599	4.656	4.600	4.48
		SD	0.099	0.176	0.113	
		Uncertainty	0.0152	0.0569	0.0148	0.04
		n	66	15	91	
Sample 3	3.64	Mean	2.773	2.794	2.777	2.65
		SD	0.064	0.094	0.070	
		Uncertainty	0.0098	0.0302	0.0091	0.02
		n	66	15	91	
Sample 4	0.87	Mean	0.879	0.888	0.871	0.81
		SD	0.027	0.038	0.042	
		Uncertainty	0.0041	0.0122	0.0055	0.01
		n	66	15	91	

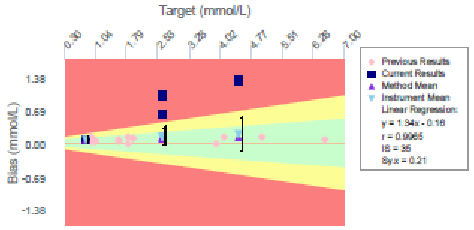
Scoring

Sample	1	2	3	4	Overall Performance
Target: (Reference Value)	2.64	4.48	2.65	0.81	
Weqas TAE	0.401	0.638	0.402	0.164	
PI	3.05	4.11	4.93	0.73	Poor

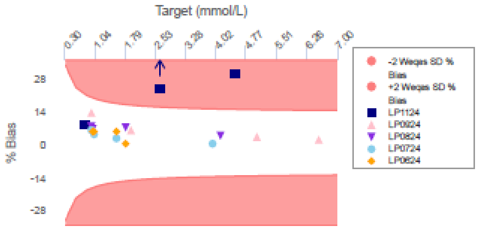
Running PI



Bias (Absolute)



Bias (Relative %)



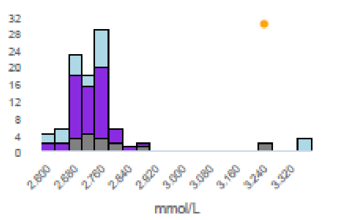
Precision

	LP0624	LP0724	LP0824	LP0924	LP1024	This distribution: LP1124
Sy.x	0.04	0	0.02	0.02		0.21
IS	29	0	1	0		35

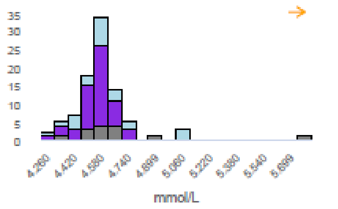
Sy.x is the average deviation from the best fit line and is an index of scatter.

IS Score	Interpretation
0 to 10	Good
11 to 150	Acceptable to Warning level
> 150	Unacceptable (incl. Curvilinear Data)

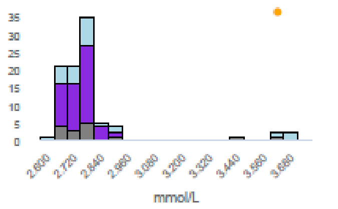
Sample 1



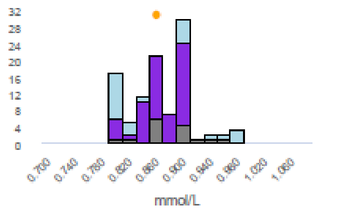
Sample 2



Sample 3



Sample 4



🟦 All Results 🟪 My Method ⬛ My Instrument ● My Result

Method Summary

LP1124	Sample 1		Sample 2		Sample 3		Sample 4	
Method Name	**Mean**	**CV%**	**Mean**	**CV%**	**Mean**	**CV%**	**Mean**	**CV%**
GPO (n=22)	2.731	2.5	4.576	2.7	2.773	2.6	0.841	6.3
NMR Spectroscopy (n=)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Roche TRIGL (n=66)	**2.752**	**2.1**	**4.599**	**2.2**	**2.773**	**2.3**	**0.879**	**3.0**
Vitros (n=3)	3.390	0.6	5.093	0.3	3.683	0.9	0.983	3.3

There are no Weqas or Participant supplied comments for Triglyceride for this distribution.

Summary Report

Analyte: Triglyceride
Overall Performance Category: Poor
Running PI analyte –sample scores: no issues before this distribution but non return for LP1024

Standard Report

Analyte results table: samples 1, 2, 3 positive bias to method, instrument, overall mean and ref value.
Scoring Table: samples 1, 2, 3 positive red PI, overall performance poor
Running PI scores: no issues before this distribution but non return for LP1024. 3 red PIs this dist, 2 > 4
Bias Chart (Absolute): 3 samples significant positive bias, linear regression shows y = 1.34x - 0.16, +34% positive proportional bias.
Bias Chart (Relative): 3 samples significant positive bias
Precision Scores: Sy.x 0.21, IS 35 (11-150 acceptable to warning), precision acceptable
Sample Histograms: samples 1, 2, 3 positive bias, sample 2 off the scale
Method Summary Data: Roche slightly positive to GPO method, scored ref values available

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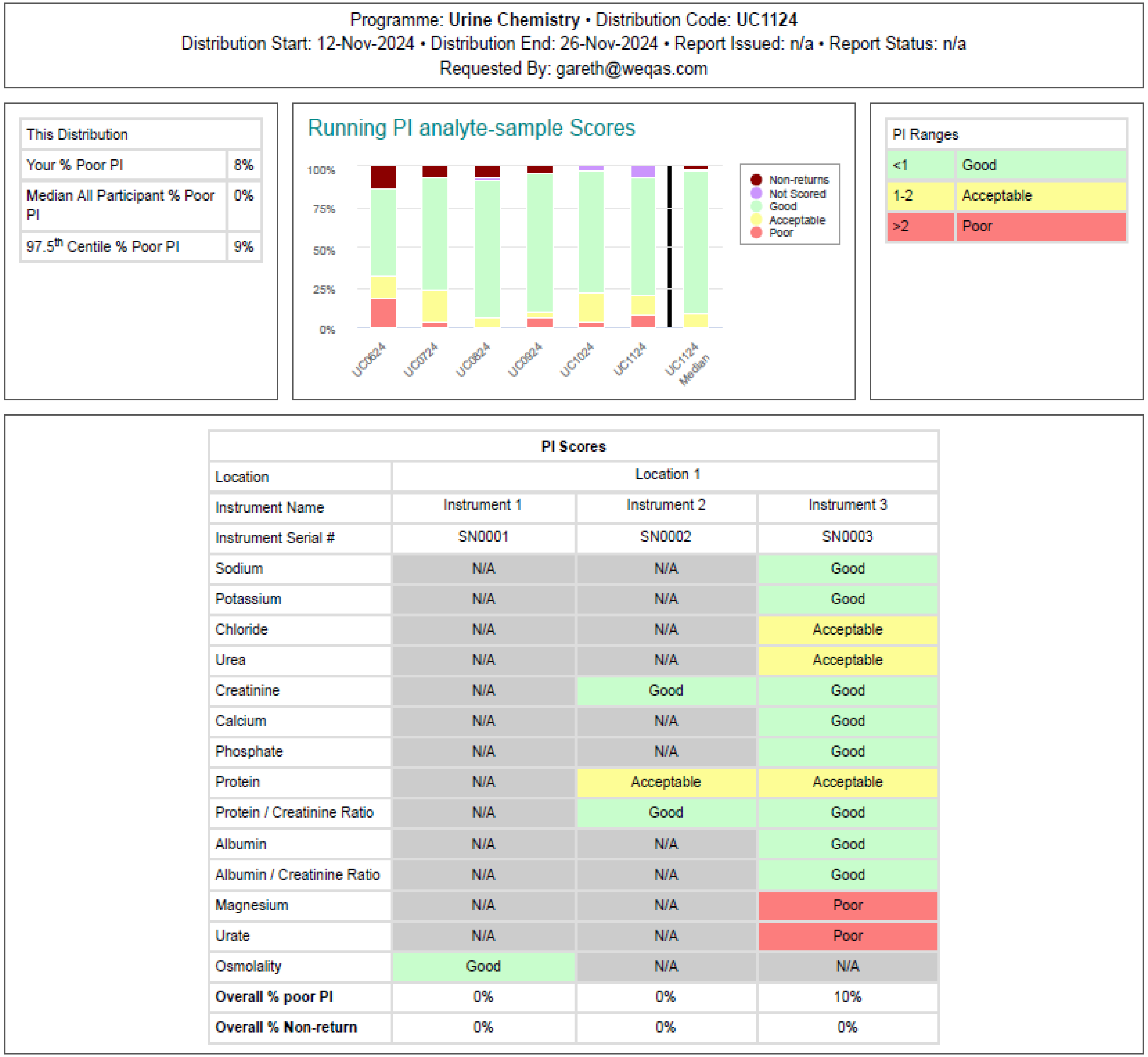
Case 3 – Urine Chemistry - Urate



Programme: **Urine Chemistry** • Distribution Code: **UC1124**
Distribution Start: 12-Nov-2024 • Distribution End: 26-Nov-2024 • Report Issued: n/a • Report Status: n/a
Requested By: gareth@weqas.com

This Distribution	
Your % Poor PI	8%
Median All Participant % Poor PI	0%
97.5th Centile % Poor PI	9%

Running PI analyte-sample Scores

PI Ranges	
<1	Good
1-2	Acceptable
>2	Poor

PI Scores

Location	Location 1		
Instrument Name	Instrument 1	Instrument 2	Instrument 3
Instrument Serial #	SN0001	SN0002	SN0003
Sodium	N/A	N/A	Good
Potassium	N/A	N/A	Good
Chloride	N/A	N/A	Acceptable
Urea	N/A	N/A	Acceptable
Creatinine	N/A	Good	Good
Calcium	N/A	N/A	Good
Phosphate	N/A	N/A	Good
Protein	N/A	Acceptable	Acceptable
Protein / Creatinine Ratio	N/A	Good	Good
Albumin	N/A	N/A	Good
Albumin / Creatinine Ratio	N/A	N/A	Good
Magnesium	N/A	N/A	Poor
Urate	N/A	N/A	Poor
Osmolality	Good	N/A	N/A
Overall % poor PI	0%	0%	10%
Overall % Non-return	0%	0%	0%

Participant Code: WQ##### • **Location:** Location 1 • **Analyser Name:** cobas pro 2 c503 • **Serial #:** SN0003
Date Samples received: 14-Nov-2024 • Date of Analysis: 18-Nov-2024 • Operator Details: ## • Storage Conditions: 2 - 8 °C

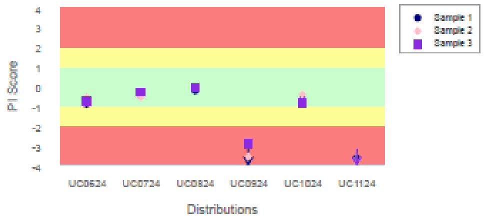
Analyte: Urate • **Method:** Uricase / Peroxidase • **Kit:** UA2 (08058750190)

Urate mmol/L					
	Your reported result (mmol/L)		**Method: Uricase / Peroxidase**	**Instrument Model: cobas c 503**	**Overall**
Sample 1	0.83	Mean	1.2434	1.0760	1.2434
		SD	0.0379	0.2416	0.0379
		Uncertainty	0.00768	0.17435	0.00768
		n	38	3	38
Sample 2	1.55	Mean	2.2941	2.0340	2.2941
		SD	0.0561	0.4779	0.0561
		Uncertainty	0.01138	0.34492	0.01138
		n	38	3	38
Sample 3	1.44	Mean	2.0485	1.7927	2.0485
		SD	0.0628	0.3466	0.0628
		Uncertainty	0.01274	0.25011	0.01274
		n	38	3	38

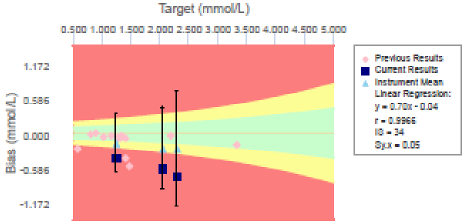
Scoring

Sample	1	2	3	Overall Performance
Target: (Method Mean)	1.2434	2.2941	2.0485	
Weqas TAE	0.2264	0.3239	0.2979	
PI	-3.65	-4.59	-4.09	Poor

Running PI



Bias (Absolute)



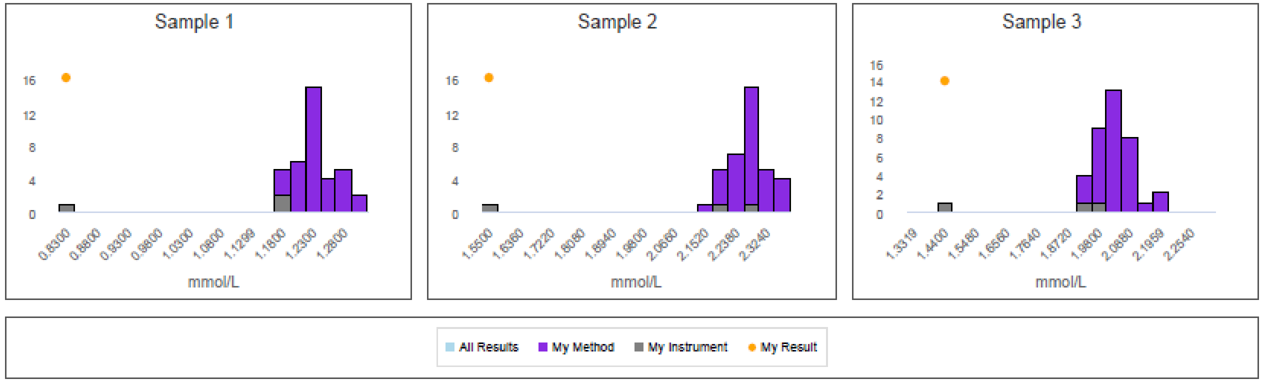
Bias (Relative %)

Precision

	UC0624	UC0724	UC0824	UC0924	UC1024	This distribution: UC1124
Sy.x	0.02	0.01		0.08	0.03	0.05
IS	1	9		118	428	34

Sy.x is the average deviation from the best fit line and is an index of scatter.

IS Score	Interpretation
0 to 10	Good
11 to 150	Acceptable to Warning level
> 150	Unacceptable (incl. Curvilinear Data)



Method Summary

UC1124	Sample 1		Sample 2		Sample 3	
Method Name	**Mean**	**CV%**	**Mean**	**CV%**	**Mean**	**CV%**
Uricase / Peroxidase (n=38)	**1.2434**	**3.0**	**2.2941**	**2.4**	**2.0485**	**3.1**

There are no Weqas or Participant supplied comments for Urate for this distribution.

Summary Report

Analyte: Urine urate
Overall Performance Category: poor
Running PI analyte: sample scores: some poor on most distributions

Standard Report

Analyte results table: significant negative results for all 3 samples compared to method mean, instrument mean lower than method mean but n=3
Scoring Table: all 3 samples negative red PI, overall performance poor
Running PI scores: same pattern for UC0924 and UC1124, otherwise all good
Bias Chart (Absolute): negative bias for all 3 samples, 3 previous samples similar pattern, others compare well to target values, instrument SDs wide but n only 3 so these results affecting this SD. Linear regression shows y = 0.70x - 0.04. 30% negative proportional bias
Bias Chart (Relative): all 3 samples significant negative bias, all in the red
Precision Scores: Sy.x 0.05, IS 34 (11-150 acceptable to warning), precision acceptable
Sample Histograms: all 3 samples significant negative bias, do not compare to other particpants
Method Summary Data: all participants in same method group