

## Haematology/Blood Transfusion

### Uncertainty of Measurement values

#### Full Blood Count

Test Range/ critical limit	Expected range/ critical limit	Mean	SD	CV%	Standard Uncertainty (1.96*SD UoM)	Standard error
WBC	<2.5 10 <sup>9</sup> /L	2.02	0.056	1.81	+/- 0.109 10 <sup>9</sup> /L	0.018
WBC	4.0-11.0 10 <sup>9</sup> /L	7.48	0.082	1.10	+/- 0.160 10 <sup>9</sup> /L	0.0259
WBC	>20.0 10 <sup>9</sup> /L	22.45	0.198	0.88	+/- 0.388 10 <sup>9</sup> /L	0.063
RBC	4.5-6.5 10 <sup>12</sup> /L	4.96	0.029	0.58	+/- 0.057 10 <sup>12</sup> /L	0.0090
Haemoglobin	130 -180 g/L	143.60	0.490	0.34	+/- 0.960 g/L	0.1549
Haemoglobin	<80 g/L	76.80	0.400	0.52	+/- 0.784 g/L	0.126
Haemoglobin	>190 g/L	194.90	0.539	0.31	+/- 1.056 g/L	0.170
Haematocrit	40-52 L/L	0.44	0.003	0.56	+/- 0.005 L/L	0.0008
Haematocrit	>0.56 L/L	0.58	0.003	0.62	+/- 0.005 L/L	0.001
MCV	80-102 fl	89.29	0.114	0.13	+/- 0.223 fl	0.0359
MCV	<75 fl	74.90	0.179	0.20	+/- 0.350 fl	0.057
MCV	fl	104.47	0.102	0.56	+/- 0.199 fl	0.032
MCHC 320-370	>105 g/L	324.60	1.744	0.54	+/- 3.418 g/L	0.5514
MCHC	>370 g/L	382.20	3.370	0.88	+/- 1.06583 g/L	0.834
Platelets	150-450 10 <sup>9</sup> /L	197.90	2.508	1.27	+/- 4.915 10 <sup>9</sup> /L	0.7931
Platelets	<50 10 <sup>9</sup> /L	49.50	2.110	4.26	+/- 4.135 10 <sup>9</sup> /L	0.667
Neutrophils	1.8 -7.5 10 <sup>9</sup> /L	4.72	0.080	1.70	+/- 0.156 10 <sup>9</sup> /L	0.0253
Neutrophils	<1.0 10 <sup>9</sup> /L	0.97	0.037	3.36	+/- 0.072 10 <sup>9</sup> /L	0.012
Lymphocytes	1.0-4.5 10 <sup>9</sup> /L	1.78	0.020	1.14	+/- 0.039 10 <sup>9</sup> /L	0.0064
Lymphocyte	>6.0 10 <sup>9</sup> /L	6.23	0.092	1.68	+/- 0.180 10 <sup>9</sup> /L	0.367
Monocytes	0.2-1.2 10 <sup>9</sup> /L	0.68	0.036	5.27	+/- 0.070 10 <sup>9</sup> /L	0.0113
Eosinophils	0.04-0.5 10 <sup>9</sup> /L	0.26	0.024	9.32	+/- 0.047 10 <sup>9</sup> /L	0.0075
Basophils	0-0.1 10 <sup>9</sup> /L	0.05	0.010	18.84	+/- 0.019 10 <sup>9</sup> /L	0.0031

## Coagulation

Test Range/ critical limit	Expected range/ critical limit	Mean	SD	CV%	Standard Uncertainty (1.96*SD UoM)	Standard error
Normal PT	11-15 secs	14.67	0.110	0.7498	+/- 0.215 secs	0.034
Raised PT	> 30 secs	34.31	0.192	0.558	+/- 0.376 secs	0.607
Normal INR	1.5 – 4.5 ratio	1.038	0.007	0.7209	+/- 0.013	0.002
INR 2-3	2.0 – 3.0 ratio	2.356	0.012	0.509	+/- 0.023	0.003
INR 3-4	3.0 – 4.0 ratio	3.183	0.011	0.345	+/- 0.021	0.003
INR >5	>5.0 ratio	5.513	0.020	0.372	+/- 0.039	0.006
Normal APTT (Actin FS)	25 – 35 secs	30.82	0.146	0.476	+/- 0.286 secs	0.464
Raise APTT (Actin FS)	> 50 secs	50.53	0.328	0.650	+/- 0.642 secs	0.103
Raise APTT (Actin FS)	> 40 secs	43.34	0.272	0.644	+/- 0.533 secs	0.086
APTT (synthasil)	25-39 secs	31.05	0.128	0.413	+/- 0.250 secs	0.040
Raised APTT (synthasil)	>40 secs	42.65	0.705	1.581	+/- 1.381 secs	0.233
Fbg low	1.5 – 5.0 g/L	1.271	0.029	2.358	+/- 0.056 g/L	0.009
Fbg norm	1.5 – 5.0 g/L	5.097	0.86	16.992	+/- 0.168 g/L	0.273
Thrombin Time	14 – 19 secs	14.28	0.187	1.312	+/- 0.366 secs	0.059
Thrombin Time	> 20 secs	28.85	1.201	4.163	+/- 2.353	0.379
D-Dimer norm	0-0.5 Ug/mlFEU	0.547	0.099	18.241	+/- 0.194 Ug/mlFEU	0.031
Raised D Dimer	> 0.5 Ug/mlFEU	1.007	0.112	11.137	+/- 0.219 Ug/mlFEU	0.034
Reptilase	13 – 21 secs	17.03	0.294	1.729	+/- 0.576 secs	0.093

## Erythrocyte Sedimentation Rate

### Gateshead Autocompact

Test Range/ critical limit	Expected range/ critical limit	Mean	SD	CV%	Standard Uncertainty (1.96*SD UoM)	Standard error
Normal ESR	1-10 mm	4.86	1.07	22.01	+/- 2.10 mm	0.107
Raised ESR	30-50 mm	40.24	2.30	5.70	+/- 4.50 mm	0.231

### Gateshead Interrliner

Test Range/ critical limit	Expected range/ critical limit	Mean	SD	CV%	Standard Uncertainty (1.96*SD UoM)	Standard error
Normal ESR	1-10 mm	4.51	1.25	27.78	+/- 2.46 mm	0.12
Raised ESR	30-50 mm	38.36	2.43	6.37	+/- 4.77 mm	0.234

### South Tyneside Autocompact

Test Range/ critical limit	Expected range/ critical limit	Mean	SD	CV%	Standard Uncertainty (1.96*SD UoM)	Standard error
Normal ESR	1-10 mm	5.40	0.96	17.67	+/- 1.87 mm	0.133
Raised ESR	30-50 mm	40.58	2.75	6.79	+/- 5.40 mm	0.381

### Sunderland Interrliner

Test Range/ critical limit	Expected range/ critical limit	Mean	SD	CV%	Standard Uncertainty (1.96*SD UoM)	Standard error
Normal ESR	1-10 mm	4.85	1.32	27.19	+/- mm	0.134
Raised ESR	30-50 mm	39.59	2.29	5.79	+/- mm	0.232

### Rapid Diagnostic Testing – Malaria

The laboratory has found the value of an uncertainty of measurement of 0.57% probability that a Rapid Diagnostic Test for Malaria is misinterpreted by a Biomedical Scientist within the department.

Test Range/ critical limit	Expected range/ critical limit	Mean	SD	CV%	Standard Uncertainty (1.96*SD UoM)	Standard error
Negative, Positive (P.Falciparum) Positive (P.Vivax/ Ovale/ Malarie) Positive (P.Falciparum + Mixed Infection)	Case dependent	0.08	0.29	346.41	0.57	0.076

### Digital Morphology DI-60

Measurement based on % comparability with cell count.

Test Range/ critical limit	Expected range/ critical limit	Mean	SD	CV%	Standard Uncertainty (1.96*SD UoM)
100%	> 97%	99.77	0.42	0.42	+/- 0.83 %

### Digital Morphology DM-96 (QEH site)

Test Range/ critical limit	Expected range/ critical limit	Mean	SD	CV%	Standard Uncertainty (1.96*SD UoM)
100%	> 97%	99.67	0.52	0.53	+/- 1.03 %

### Digital Morphology DM-96 (SRH site)

Test Range/ critical limit	Expected range/ critical limit	Mean	SD	CV%	Standard Uncertainty (1.96*SD UoM)
100%	> 97%	99.79	0.52	0.52	+/-1.02 %

### Digital Morphology DM-1200 (STH site)

Test Range/ critical limit	Expected range/ critical limit	Mean	SD	CV%	Standard Uncertainty (1.96*SD UoM)
100%	> 97%	99.90	0.23	0.23	+/- 0.45%

### Infectious Mononucleosis

The laboratory has found the value of an uncertainty of measurement of 0.0 % probability that a Rapid Diagnostic Test for Malaria is misinterpreted by a Biomedical Scientist within the department.

Test Range/ critical limit	Expected range/ critical limit	Mean	SD	CV%	Standard Uncertainty (1.96*SD UoM)	Standard error
Positive/ Negative	As expected	0.0	0.0	0.0	0.0	0.0

### Sebia Minicap Flex

Test Range/ critical limit	Expected range/ critical limit	Mean	SD	CV%	Standard Uncertainty (1.96*SD UoM)	Standard error
Hb A	96.8-97.8%	97.39	0.031	0.000	+/- 0.061%	0.009
Hb A2	2.2-3.2%	2.61	0.031	0.012	+/- 0.061%	0.009
HbA	40.4-49.2%	45.71	0.242	0.005	+/- 0.474%	0.076
HbF	23.9-29.3%	25.49	0.172	0.006	+/- 0.337%	0.054
HbS	14.8-19.6%	19.25	0.126	0.006	+/- 0.246%	0.039
HbC	7.3-10.1%	6.8	0.081	0.012	+/- 0.158%	0.025

### Group and Antibody Screen

The laboratory has found the value of an uncertainty of measurement of 0.0 % for performance of group and antibody screen on the IH1000. All results and grade of reaction strength were as expected during verification studies.

### Crossmatch

The laboratory has found the value of an uncertainty of measurement of 0.0 % for inter-laboratory crossmatch.

**Kleihauer**

<b>Test Range/ critical limit</b>	<b>Expected range/ critical limit</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Uncertainty (1.96*SD UoM)</b>	<b>Standard error</b>
FMH 2ml	2ml	1.69	0.49	+/-0.96 mls	0.163
FMH 4ml	4ml	4.9	0.8	+/- 1.57 mls	0.267
FMH>12	>12ml	12.2	1.46	+/- 2.86 mls	0.377