



# SIQAG

South Island Quality Assurance Group for Haematology

## Haematology Comparability Document

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Date: 18/05/2009

N.B. You may print this Procedure for local reference but remember that the master copy is the **only** current version. Master copies can be obtained from [www.labnet.co.nz/siqag/haematology.html](http://www.labnet.co.nz/siqag/haematology.html), Canterbury Health Laboratories. Always check that you are working from the latest version before undertaking any activity which relies on information contained therein.

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## Introduction

The South Island Quality Assurance Group (SIQAG) for Haematology was established in 2008 / 2009 as part of a comparability project between Canterbury Health Laboratories, Southern Community Laboratories, Med Lab South and Grey Hospital Laboratory. This project was completed as part of a larger programme of work looking at the development of a regional results repository in the Canterbury region, similar to the Test Safe model adopted in Auckland.

The scope of work was initially limited to tests from the Health PAC schedule though it was agreed that other tests identified by this group could be reviewed.

Haematologists and senior Medical Laboratory Scientists from each laboratory met and pragmatically assessed tests for comparability.

In order to ensure that results reported to Éclair would cumulate and display correctly, each test that was deemed comparable had the following reviewed and agreed;

- Name (standardised to LOINC recommendation).
- reference interval.
- units.
- number of decimal places reported.
- LOINC code.

Labnet partners, Taranaki and Hawke's Bay, which share the Delphic Laboratory System with Canterbury Health Laboratories, were consulted during the sign-off process to ensure that proposed reference intervals could be implemented across all laboratory sites.

The Northern Haematology Quality Assurance Group (NorthQAG) recommended reference intervals were also reviewed with a view to agreeing ranges nationally where possible.

The SIQAG for Haematology asks that members adopt the recommendations outlined in this document so that test information can be standardised wherever possible. It should be recognised that this is a working document and further recommendations may come from other working groups.

It is the responsibility of the SIQAG for Haematology to ensure that this document remains current.

## Basophils

Alternative name: (NA)

### Test / Analyte Information

<b>Health Pac Number</b>	S01e	<b>LOINC Code</b>	26444-0
<b>Reported to (no. DP)</b>	If the cell count $\geq 100 = 0dp$ If the cell count $\geq 0.5$ and $<100 = 1dp$ If the cell count $< 0.5 = 2dp$	<b>Units</b>	$\times 10^9/L$   $\times 10(9)/L$

### Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

### Reference Intervals

Age Range	Reference Interval
Cord	0 – 0.2
0 – 30 days	0 – 0.2
1 month	0 – 0.2
2 months – 3 months	0 – 0.2
4 months – 5 months	0 – 0.2
6 months – 7 months	0 – 0.2
8 months – 9 months	0 – 0.2
10 months – 11 months	0 – 0.2
1 year	0 – 0.2
2 years	0 – 0.2
3 years	0 – 0.2
4 years	0 – 0.2
5 years	0 – 0.2
6 years	0 – 0.2
7 years	0 – 0.2
8 years	0 – 0.2
9 years	0 – 0.2
10 years	0 – 0.2
11 years	0 – 0.2
12 years	0 – 0.2
13 years	0 – 0.2
14 years	0 – 0.2
15 years	0 – 0.2
16 + (Adult)	0 – 0.2

Antenatal 1 <sup>st</sup> Trimester	-
Antenatal 2 <sup>nd</sup> Trimester	-
Antenatal 3 <sup>rd</sup> Trimester	-
Antenatal Global (default)	-

#### Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement – SCL Paediatric Range adopted initially. Subsequently awaiting outcome of NorthQAG paediatric discussions of with IM / RS / KB are involved. SCL to retain antenatal range, CHL only report a comment.
April 2009	Agreement between NorthQAG and the SIQAG on national paediatric reference ranges.
June 2009	Discussion was held over the number of decimal places that should report depending on the result. It was agreed to change from 1dp to; <ul style="list-style-type: none"> <li>• If the cell count <math>\geq 100 = 0dp</math></li> <li>• If the cell count <math>\geq 0.5</math> and <math>&lt;100 = 1dp</math></li> <li>• If the cell count <math>&lt; 0.5 = 2dp</math></li> </ul>

## Eosinophils

Alternative name: (NA)

### Test / Analyte Information

<b>Health Pac Number</b>	S01e	<b>LOINC Code</b>	26449-9
<b>Reported to (no. DP)</b>	If the cell count $\geq 100 = 0dp$ If the cell count $\geq 0.5$ and $<100 = 1dp$ If the cell count $< 0.5 = 2dp$	<b>Units</b>	$\times 10^9/L$   $\times 10(9)/L$

### Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

### Reference Intervals

Age Range	Reference Interval
Cord	0 – 1
0 – 30 days	0 – 0.9
1 month	0 – 0.9
2 months – 3 months	0 – 0.9
4 months – 5 months	0 – 0.9
6 months – 7 months	0 – 0.9
8 months – 9 months	0 – 0.9
10 months – 11 months	0 – 0.9
1 year	0 – 0.9
2 years	0 – 0.9
3 years	0 – 0.9
4 years	0 – 1
5 years	0 – 1
6 years	0 – 1
7 years	0 – 1
8 years	0 – 0.9
9 years	0 – 0.9
10 years	0 – 0.9
11 years	0 – 0.9
12 years	0 – 0.9
13 years	0 – 0.8
14 years	0 – 0.8
15 years	0 – 0.8

16 + (Adult)	0 – 0.5
Antenatal 1 <sup>st</sup> Trimester	-
Antenatal 2 <sup>nd</sup> Trimester	-
Antenatal 3 <sup>rd</sup> Trimester	-
Antenatal Global (default)	-

#### Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement – SCL Paediatric Range adopted initially. Subsequently awaiting outcome of NorthQAG paediatric discussions of with IM / RS / KB are involved.
April 2009	Agreement between NorthQAG and the SIQAG on national paediatric reference ranges.
June 2009	Discussion was held over the number of decimal places that should report depending on the result. It was agreed to change from 1dp to; <ul style="list-style-type: none"> <li>• If the cell count <math>\geq 100 = 0dp</math></li> <li>• If the cell count <math>\geq 0.5</math> and <math>&lt;100 = 1dp</math></li> <li>• If the cell count <math>&lt; 0.5 = 2dp</math></li> </ul>

## ESR

Alternative name: (Erythrocyte Sedimentation Rate)

### Test / Analyte Information

<b>Health Pac Number</b>	H01	<b>LOINC Code</b>	30341-2
<b>Reported to (no. DP)</b>	0	<b>Units</b>	mm/hr

### Laboratory Information

<b>CHL Analyser</b>	X	<b>CHL Method</b>	X
<b>SCL Analyser</b>	X	<b>SCL Method</b>	X
<b>MLS Analyser</b>	X	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

### Reference Intervals

<b>Age Range</b>	<b>Reference Interval</b>
1-30 years	1 - 10
31-50 years	1 - 15
51-70 years	1 - 20
>71 years	1 - 30
Antenatal 1 <sup>st</sup> Trimester	-
Antenatal 2 <sup>nd</sup> Trimester	-
Antenatal 3 <sup>rd</sup> Trimester	-
Antenatal Global (default)	-

### Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement.

# Fibrinogen

Alternative name: (NA)

## Test / Analyte Information

<b>Health Pac Number</b>	H09	<b>LOINC Code</b>	3255-7
<b>Reported to (no. DP)</b>	1	<b>Units</b>	g/L

## Laboratory Information

<b>CHL Analyser</b>	X	<b>CHL Method</b>	X
<b>SCL Analyser</b>	X	<b>SCL Method</b>	X
<b>MLS Analyser</b>	X	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

## Reference Intervals

<b>Age Range</b>	<b>Reference Interval</b>
All ages	1.5-4.0
Antenatal 1 <sup>st</sup> Trimester	-
Antenatal 2 <sup>nd</sup> Trimester	-
Antenatal 3 <sup>rd</sup> Trimester	-
Antenatal Global (default)	-

## Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement.

# Haematocrit

Alternative name: (Hct / Packed Cell Volume)

Test / Analyte Information

<b>Health Pac Number</b>	S01	<b>LOINC Code</b>	20570-8
<b>Reported to (no. DP)</b>	2	<b>Units</b>	Ratio

Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

Reference Intervals

Age Range	Reference Interval	
	Female	Male
Cord	0.37 – 0.56	0.37 – 0.56
0 – 30 days	0.40 – 0.65	0.40 – 0.65
1 month	0.27 – 0.46	0.27 – 0.46
2 months – 3 months	0.29 – 0.38	0.29 – 0.38
4 months – 5 months	0.31 – 0.40	0.31 – 0.40
6 months – 7 months	0.31 – 0.40	0.31 – 0.40
8 months – 9 months	0.31 – 0.40	0.31 – 0.40
10 months – 11 months	0.31 – 0.40	0.31 – 0.40
1 year	0.32 – 0.41	0.32 – 0.41
2 years	0.32 – 0.41	0.32 – 0.41
3 years	0.32 – 0.41	0.32 – 0.41
4 years	0.33 – 0.42	0.33 – 0.42
5 years	0.33 – 0.42	0.33 – 0.42
6 years	0.33 – 0.42	0.33 – 0.42
7 years	0.33 – 0.42	0.33 – 0.42
8 years	0.35 – 0.43	0.35 – 0.43
9 years	0.35 – 0.43	0.35 – 0.43
10 years	0.35 – 0.43	0.35 – 0.43
11 years	0.35 – 0.43	0.35 – 0.43
12 years	0.35 – 0.43	0.35 – 0.43
13 years	0.35 – 0.44	0.37 - 0.47
14 years	0.35 – 0.44	0.37 - 0.47
15 years	0.35 - 0.44	0.37 - 0.47
16 + (Adult)	0.35 - 0.46	0.40 - 0.52

Antenatal 1 <sup>st</sup> Trimester	0.31 - 0.47	X
Antenatal 2 <sup>nd</sup> Trimester	0.31 - 0.47	X
Antenatal 3 <sup>rd</sup> Trimester	0.31 - 0.47	X
Antenatal Global (default)	-	-

Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement – SCL Paediatric Range adopted initially. Subsequently awaiting outcome of NorthQAG paediatric discussions of with IM / RS / KB are involved.
April 2009	Agreement between NorthQAG and the SIQAG on national paediatric reference ranges.

# Haemoglobin

Alternative name: (NA)

Test / Analyte Information

<b>Health Pac Number</b>	S01c	<b>LOINC Code</b>	718-7
<b>Reported to (no. DP)</b>	0	<b>Units</b>	g/L
<b>Paediatric Range Needed</b>	Yes	<b>Sample Type</b>	EDTA

Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

Reference Intervals

Age Range	Reference Interval	
	Female	Male
Cord	124 – 192	124 – 192
0 – 30 days	120 – 200	120 – 200
1 month	93 – 158	93 – 158
2 months – 3 months	97 – 130	97 – 130
4 months – 5 months	105 – 136	105 – 136
6 months – 7 months	105 – 136	105 – 136
8 months – 9 months	105 – 136	105 – 136
10 months – 11 months	105 – 136	105 – 136
1 year	105 – 140	105 – 140
2 years	105 – 140	105 – 140
3 years	105 – 140	105 – 140
4 years	113 – 145	113 – 145
5 years	113 – 145	113 – 145
6 years	113 – 145	113 – 145
7 years	113 – 145	113 – 145
8 years	115 – 145	115 – 145
9 years	115 – 145	115 – 145
10 years	115 – 145	115 – 145
11 years	115 – 145	115 – 145
12 years	115 – 145	115 – 145
13 years	115 – 150	125 – 160
14 years	115 – 150	125 – 160
15 years	115 – 150	125 – 160

16+ years (Adult)	115 – 155	130 – 175
Antenatal 1 <sup>st</sup> Trimester	100 – 150	X
Antenatal 2 <sup>nd</sup> Trimester	100 - 150	X
Antenatal 3 <sup>rd</sup> Trimester	100 - 150	X
Antenatal Global (default)	-	-

#### Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement – SCL Paediatric Range adopted initially. Subsequently awaiting outcome of NorthQAG paediatric discussions of with IM / RS / KB are involved.
April 2009	Agreement between NorthQAG and the SIQAG on national paediatric reference ranges.

# INR

Alternative name: (International Normalised Ratio - INR (not on anticoagulants))

Test / Analyte Information

<b>Health Pac Number</b>	H06	<b>LOINC Code</b>	6301-6
<b>Reported to (no. DP)</b>	1	<b>Units</b>	Ratio

Laboratory Information

<b>CHL Analyser</b>	ACL TOP	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex CA1500	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Stago Compacts	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

Reference Intervals

<b>Age Range</b>	<b>Reference Interval</b>
16 + (Adult)	0.8-1.2

Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement.

# Lymphocytes

Alternative name: (NA)

## Test / Analyte Information

<b>Health Pac Number</b>	S01e	<b>LOINC Code</b>	26474-7
<b>Reported to (no. DP)</b>	If the cell count $\geq 100 = 0dp$ If the cell count $\geq 0.5$ and $<100 = 1dp$ If the cell count $< 0.5 = 2dp$	<b>Units</b>	$\times 10^9/L$   $\times 10(9)/L$

## Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

## Reference Intervals

Age Range	Reference Interval
Cord	2.1 – 10.7
0 – 30 days	2 -14
1 month	3.7 – 8
2 months – 3 months	4.2 – 10.6
4 months – 5 months	3.5 – 11.5
6 months – 7 months	3.5 – 11.5
8 months – 9 months	3.5 – 11.5
10 months – 11 months	3.5 – 11.5
1 year	2 – 8
2 years	2 – 8
3 years	2 – 8
4 years	1.4 – 5.7
5 years	1.4 – 5.7
6 years	1.4 – 5.7
7 years	1.4 – 5.7
8 years	1.4 – 4.5
9 years	1.4 – 4.5
10 years	1.4 – 4.5
11 years	1.4 – 4.5
12 years	1.4 – 4.5
13 years	1.4 - 4
14 years	1.4 - 4
15 years	1.4 - 4

16 + (Adult)	1 – 4
Antenatal 1 <sup>st</sup> Trimester	
Antenatal 2 <sup>nd</sup> Trimester	
Antenatal 3 <sup>rd</sup> Trimester	
Antenatal Global (default)	-

#### Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement – SCL Paediatric Range adopted initially. Subsequently awaiting outcome of NorthQAG paediatric discussions of with IM / RS / KB are involved.
April 2009	Agreement between NorthQAG and the SIQAG on national paediatric reference ranges.
June 2009	Discussion was held over the number of decimal places that should report depending on the result. It was agreed to change from 1dp to; <ul style="list-style-type: none"> <li>• If the cell count <math>\geq 100 = 0dp</math></li> <li>• If the cell count <math>\geq 0.5</math> and <math>&lt;100 = 1dp</math></li> <li>• If the cell count <math>&lt; 0.5 = 2dp</math></li> </ul>

# MCH

Alternative name: (Mean Cell Haemoglobin)

Test / Analyte Information

<b>Health Pac Number</b>	S01	<b>LOINC Code</b>	28539-5
<b>Reported to (no. DP)</b>	0	<b>Units</b>	pg

Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

Reference Intervals

<b>Age Range</b>	<b>Reference Interval</b>
Cord	32 – 39
0 – 30 days	28 – 38
1 month	28 – 34
2 months – 3 months	24 – 32
4 months – 5 months	22 – 29
6 months – 7 months	22 – 29
8 months – 9 months	22 – 29
10 months – 11 months	22 – 29
1 year	23 – 29
2 years	23 – 29
3 years	23 – 29
4 years	24 – 29
5 years	24 – 29
6 years	24 – 29
7 years	24 – 29
8 years	24 – 30
9 years	24 – 30
10 years	24 – 30
11 years	24 – 30
12 years	24 – 30
13 years	25 – 31
14 years	25 – 31
15 years	25 – 31
16 + (Adult)	27 – 33

Antenatal 1 <sup>st</sup> Trimester	
Antenatal 2 <sup>nd</sup> Trimester	
Antenatal 3 <sup>rd</sup> Trimester	
Antenatal Global (default)	-

Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement – SCL Paediatric Range adopted initially. Subsequently awaiting outcome of NorthQAG paediatric discussions of with IM / RS / KB are involved.
April 2009	Agreement between NorthQAG and the SIQAG on national paediatric reference ranges.

# MCHC

Alternative name: (Mean Cell Haemoglobin Concentration)

Test / Analyte Information

<b>Health Pac Number</b>	S01	<b>LOINC Code</b>	28540-3
<b>Reported to (no. DP)</b>	0	<b>Units</b>	g/L

Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

Reference Intervals

Age Range	Reference Interval	
	Female	Male
Cord	305 – 345	305 – 345
0 – 30 days	324 – 364	324 – 364
1 month	324 – 364	324 – 364
2 months – 3 months	323 – 361	323 – 361
4 months – 5 months	315 – 353	315 – 353
6 months – 7 months	315 – 353	315 – 353
8 months – 9 months	315 – 353	315 – 353
10 months – 11 months	315 – 353	315 – 353
1 year	317 – 353	317 – 353
2 years	317 – 353	317 – 353
3 years	317 – 353	317 – 353
4 years	319 – 353	319 – 353
5 years	319 – 353	319 – 353
6 years	319 – 353	319 – 353
7 years	319 – 353	319 – 353
8 years	315 – 350	315 – 350
9 years	315 – 350	315 – 350
10 years	315 – 350	315 – 350
11 years	315 – 350	315 – 350
12 years	315 – 350	315 – 350
13 years	315 – 350	318 – 353
14 years	315 – 350	318 – 353
15 years	315 – 350	318 – 353

16 + (Adult)	300 – 365	300 – 365
Antenatal 1 <sup>st</sup> Trimester		
Antenatal 2 <sup>nd</sup> Trimester		
Antenatal 3 <sup>rd</sup> Trimester		
Antenatal Global (default)		

#### Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
April 2009	This analyte was not originally reviewed as it was not envisaged that the results would be sent to Éclair, however agreement between NorthQAG and the SIQAG on national paediatric reference ranges has included MCHC therefore for completeness it has been included in this documentation but this parameter won't be reported.

## MCV

Alternative name: (Mean Cell Volume)

### Test / Analyte Information

<b>Health Pac Number</b>	S01	<b>LOINC Code</b>	30428-7
<b>Reported to (no. DP)</b>	0	<b>Units</b>	fL

### Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

### Reference Intervals

<b>Age Range</b>	<b>Reference Interval</b>
Cord	99 – 119
0 – 30 days	90 – 120
1 month	89 – 100
2 months – 3 months	72 – 91
4 months – 5 months	69 – 84
6 months – 7 months	69 – 84
8 months – 9 months	69 – 84
10 months – 11 months	69 – 84
1 year	70 – 86
2 years	70 – 86
3 years	70 – 86
4 years	74 – 87
5 years	74 – 87
6 years	74 – 87
7 years	74 – 87
8 years	75 – 90
9 years	75 – 90
10 years	75 – 90
11 years	75 – 90
12 years	75 – 90
13 years	78 – 93
14 years	78 – 93
15 years	78 – 93
16 + (Adult)	80 - 99

Antenatal 1 <sup>st</sup> Trimester	
Antenatal 2 <sup>nd</sup> Trimester	
Antenatal 3 <sup>rd</sup> Trimester	
Antenatal Global (default)	-

Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement – SCL Paediatric Range adopted initially. Subsequently awaiting outcome of NorthQAG paediatric discussions of with IM / RS / KB are involved.
April 2009	Agreement between NorthQAG and the SIQAG on national paediatric reference ranges.

# Monocytes

Alternative name: (NA)

## Test / Analyte Information

<b>Health Pac Number</b>	S01e	<b>LOINC Code</b>	26484-6
<b>Reported to (no. DP)</b>	If the cell count $\geq 100 = 0dp$ If the cell count $\geq 0.5$ and $<100 = 1dp$ If the cell count $< 0.5 = 2dp$	<b>Units</b>	$\times 10^9/L$   $\times 10(9)/L$

## Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

## Reference Intervals

Age Range	Reference Interval
Cord	0.7 – 2.7
0 – 30 days	0.5 – 1.5
1 month	0.5 – 1.5
2 months – 3 months	0.4 – 1.3
4 months – 5 months	0.3 – 1.5
6 months – 7 months	0.3 – 1.5
8 months – 9 months	0.3 – 1.5
10 months – 11 months	0.3 – 1.5
1 year	0.3 – 1.3
2 years	0.3 – 1.3
3 years	0.3 – 1.3
4 years	0.3 – 1
5 years	0.3 – 1
6 years	0.3 – 1
7 years	0.3 – 1
8 years	0.3 – 0.9
9 years	0.3 – 0.9
10 years	0.3 – 0.9
11 years	0.3 – 0.9
12 years	0.3 – 0.9
13 years	0.3 – 0.9
14 years	0.3 – 0.9
15 years	0.3 – 0.9

16 + (Adult)	0.2 - 1.0
Antenatal 1 <sup>st</sup> Trimester	0.2 - 1.2
Antenatal 2 <sup>nd</sup> Trimester	0.2 - 1.2
Antenatal 3 <sup>rd</sup> Trimester	0.2 - 1.2
Antenatal Global (default)	-

#### Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement – SCL Paediatric Range adopted initially. Subsequently awaiting outcome of NorthQAG paediatric discussions of with IM / RS / KB are involved.
April 2009	Agreement between NorthQAG and the SIQAG on national paediatric reference ranges.
June 2009	Discussion was held over the number of decimal places that should report depending on the result. It was agreed to change from 1dp to; <ul style="list-style-type: none"> <li>• If the cell count <math>\geq 100 = 0dp</math></li> <li>• If the cell count <math>\geq 0.5</math> and <math>&lt;100 = 1dp</math></li> <li>• If the cell count <math>&lt; 0.5 = 2dp</math></li> </ul>

## Neutrophils

Alternative name: (NA)

### Test / Analyte Information

<b>Health Pac Number</b>	S01e	<b>LOINC Code</b>	26499-4
<b>Reported to (no. DP)</b>	If the cell count $\geq 100 = 0dp$ If the cell count $\geq 0.5$ and $<100 = 1dp$ If the cell count $< 0.5 = 2dp$	<b>Units</b>	$\times 10^9/L$   $\times 10(9)/L$

### Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

### Reference Intervals

Age Range	Reference Interval
Cord	3.3 – 13
0 – 30 days	2 – 12
1 month	0.5 – 3.9
2 months – 3 months	0.8 – 4.7
4 months – 5 months	0.9 – 5.9
6 months – 7 months	0.9 – 5.9
8 months – 9 months	0.9 – 5.9
10 months – 11 months	0.9 – 5.9
1 year	1 – 7
2 years	1 – 7
3 years	1 – 7
4 years	1.5 – 8
5 years	1.5 – 8
6 years	1.5 – 8
7 years	1.5 – 8
8 years	1.5 – 7
9 years	1.5 – 7
10 years	1.5 – 7
11 years	1.5 – 7
12 years	1.5 – 7
13 years	1.8 – 7
14 years	1.8 – 7
15 years	1.8 – 7

16 + (Adult)	1.9 - 7.5
Antenatal 1 <sup>st</sup> Trimester	1.9 - 10.5
Antenatal 2 <sup>nd</sup> Trimester	1.9 - 10.5
Antenatal 3 <sup>rd</sup> Trimester	1.9 - 10.5
Antenatal Global (default)	-

#### Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement – SCL Paediatric Range adopted initially. Subsequently awaiting outcome of NorthQAG paediatric discussions of with IM / RS / KB are involved.
April 2009	Agreement between NorthQAG and the SIQAG on national paediatric reference ranges.
June 2009	Discussion was held over the number of decimal places that should report depending on the result. It was agreed to change from 1dp to; <ul style="list-style-type: none"> <li>• If the cell count <math>\geq 100 = 0dp</math></li> <li>• If the cell count <math>\geq 0.5</math> and <math>&lt;100 = 1dp</math></li> <li>• If the cell count <math>&lt; 0.5 = 2dp</math></li> </ul>

## Platelets

Alternative name: (NA)

### Test / Analyte Information

<b>Health Pac Number</b>	S0f	<b>LOINC Code</b>	26515-7
<b>Reported to (no. DP)</b>	0	<b>Units</b>	x10 <sup>9</sup> /L   x10(9)/L

### Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

### Reference Intervals

<b>Age Range</b>	<b>Reference Interval</b>
Cord	150 – 400
0 – 30 days	150 – 650
1 month	150 – 650
2 months – 3 months	150 – 650
4 months – 5 months	150 – 575
6 months – 7 months	150 – 575
8 months – 9 months	150 – 575
10 months – 11 months	150 – 575
1 year	150 – 500
2 years	150 – 500
3 years	150 – 500
4 years	150 – 475
5 years	150 – 475
6 years	150 – 475
7 years	150 – 475
8 years	150 – 425
9 years	150 – 425
10 years	150 – 425
11 years	150 – 425
12 years	150 – 425
13 years	150 – 400
14 years	150 – 400
15 years	150 – 400
16 + (Adult)	150 – 400

Antenatal 1 <sup>st</sup> Trimester	150 – 400
Antenatal 2 <sup>nd</sup> Trimester	150 – 400
Antenatal 3 <sup>rd</sup> Trimester	150 – 400
Antenatal Global (default)	-

Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement – SCL Paediatric Range adopted initially. Subsequently awaiting outcome of NorthQAG paediatric discussions of with IM / RS / KB are involved.
April 2009	Agreement between NorthQAG and the SIQAG on national paediatric reference ranges.

## RBC

Alternative name: (Red Blood Cell Count)

### Test / Analyte Information

<b>Health Pac Number</b>	S01a	<b>LOINC Code</b>	26453-1
<b>Reported to (no. DP)</b>	2	<b>Units</b>	x10 <sup>12</sup> /L   x10(12)/L

### Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

### Reference Intervals

Age Range	Reference Interval	
	Female	Male
Cord	3.53 – 5.52	3.53 – 5.52
0 – 30 days	3.9 – 6	3.9 – 6
1 month	2.9 – 4.8	2.9 – 4.8
2 months – 3 months	3.3 – 4.8	3.3 – 4.8
4 months – 5 months	4 – 5.3	4 – 5.3
6 months – 7 months	4 – 5.3	4 – 5.3
8 months – 9 months	4 – 5.3	4 – 5.3
10 months – 11 months	4 – 5.3	4 – 5.3
1 year	4 – 5.4	4 – 5.4
2 years	4 – 5.4	4 – 5.4
3 years	4 – 5.4	4 – 5.4
4 years	4.1 – 5.4	4.1 – 5.4
5 years	4.1 – 5.4	4.1 – 5.4
6 years	4.1 – 5.4	4.1 – 5.4
7 years	4.1 – 5.4	4.1 – 5.4
8 years	4.15 – 5.4	4.15 – 5.4
9 years	4.15 – 5.4	4.15 – 5.4
10 years	4.2 – 5.6	4.2 – 5.6
11 years	4.2 – 5.6	4.2 – 5.6
12 years	4.2 – 5.6	4.2 – 5.6
13 years	4 – 5.35	4.4 – 5.7
14 years	4 – 5.35	4.4 – 5.7
15 years	4 – 5.35	4.4 – 5.7

16 + (Adult)	3.6 – 5.6	4.3 – 6.0
Antenatal 1 <sup>st</sup> Trimester		
Antenatal 2 <sup>nd</sup> Trimester		
Antenatal 3 <sup>rd</sup> Trimester		
Antenatal Global (default)		

#### Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
April 2009	This analyte was not originally reviewed as it was not envisaged that the results would be sent to Éclair, however agreement between NorthQAG and the SIQAG on national paediatric reference ranges has included RBC therefore for completeness it has been included in this documentation but this parameter won't be reported.

## RDW

Alternative name: (Red Cell Distribution Width)

### Test / Analyte Information

<b>Health Pac Number</b>	S01	<b>LOINC Code</b>	30385-9
<b>Reported to (no. DP)</b>	1	<b>Units</b>	%

### Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

### Reference Intervals

Age Range	Reference Interval	
	Female	Male
Cord	15.2 – 19	15.2 – 19
0 – 30 days	13.2 – 18	13.2 – 18
1 month	13.2 – 17.5	13.2 – 17.5
2 months – 3 months	11.9 – 16.2	11.9 – 16.2
4 months – 5 months	12 – 16	12 – 16
6 months – 7 months	12 – 16	12 – 16
8 months – 9 months	12 – 16	12 – 16
10 months – 11 months	12 – 16	12 – 16
1 year	12 – 15.5	12 – 15.5
2 years	12 – 15.5	12 – 15.5
3 years	12 – 15.5	12 – 15.5
4 years	12 – 14.5	12 – 14.5
5 years	12 – 14.5	12 – 14.5
6 years	12 – 14.5	12 – 14.5
7 years	12 – 14.5	12 – 14.5
8 years	12 – 14.5	12 – 14.5
9 years	12 – 14.5	12 – 14.5
10 years	12 – 14.5	12 – 14.5
11 years	12 – 14.5	12 – 14.5
12 years	12 – 14.5	12 – 14.5
13 years	12 – 15	12 – 14.5
14 years	12 – 15	12 – 14.5
15 years	12 – 15	12 – 14.5

16 + (Adult)	11.5 – 15	11.5 – 15
Antenatal 1 <sup>st</sup> Trimester		
Antenatal 2 <sup>nd</sup> Trimester		
Antenatal 3 <sup>rd</sup> Trimester		
Antenatal Global (default)		

#### Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
April 2009	This analyte was not originally reviewed as it was not envisaged that the results would be sent to Éclair, however agreement between NorthQAG and the SIQAG on national paediatric reference ranges has included RBC therefore for completeness it has been included in this documentation but this parameter won't be reported.

## Reticulocytes

Alternative name: (retics)

### Test / Analyte Information

<b>Health Pac Number</b>	H19	<b>LOINC Code</b>	14196-0
<b>Reported to (no. DP)</b>	0	<b>Units</b>	x10 <sup>9</sup> /L   x10(9)/L

### Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

### Reference Intervals

<b>Age Range</b>	<b>Reference Interval</b>
Adult	20-100
Antenatal 1 <sup>st</sup> Trimester	-
Antenatal 2 <sup>nd</sup> Trimester	-
Antenatal 3 <sup>rd</sup> Trimester	-
Antenatal Global (default)	-

### Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement.

## WBC

Alternative name: (White Blood Cell Count)

### Test / Analyte Information

<b>Health Pac Number</b>	S01b	<b>LOINC Code</b>	26464-8
<b>Reported to (no. DP)</b>	If the cell count $\geq 100 = 0dp$ All others = 1dp	<b>Units</b>	$\times 10^9/L$   $\times 10(9)/L$

### Laboratory Information

<b>CHL Analyser</b>	Sysmex XE2100	<b>CHL Method</b>	X
<b>SCL Analyser</b>	Sysmex XE2100	<b>SCL Method</b>	X
<b>MLS Analyser</b>	Sysmex XE2100	<b>MLS Method</b>	X
<b>WCDHB Analyser</b>		<b>WCDHB Method</b>	
<b>TDHB Analyser</b>		<b>TDHB Method</b>	
<b>HBDHB Analyser</b>		<b>HBDHB Method</b>	

### Reference Intervals

<b>Age Range</b>	<b>Reference Interval</b>
Cord	7.3 – 25.8
0 – 30 days	5 – 20
1 month	5.8 – 13
2 months – 3 months	6.6 – 15
4 months – 5 months	6.4 – 17
6 months – 7 months	6.4 – 17
8 months – 9 months	6.4 – 17
10 months – 11 months	6.4 – 17
1 year	5 – 14.5
2 years	5 – 14.5
3 years	5 – 14.5
4 years	4.5 – 12
5 years	4.5 – 12
6 years	4.5 – 12
7 years	4.5 – 12
8 years	4.3 – 12
9 years	4.3 – 12
10 years	4.3 – 12
11 years	4.3 – 12
12 years	4.3 – 12
13 years	4.2 – 10
14 years	4.2 – 10
15 years	4.2 – 10
16 + (Adult)	4 – 11

Antenatal 1 <sup>st</sup> Trimester	4 – 15
Antenatal 2 <sup>nd</sup> Trimester	4 – 15
Antenatal 3 <sup>rd</sup> Trimester	4 – 15
Antenatal Global (default)	-

#### Reference Intervals Justification

<b>Date of change</b>	<b>Justification</b>
December 2007	Conception / Agreement – SCL Paediatric Range adopted initially. Subsequently awaiting outcome of NorthQAG paediatric discussions of with IM / RS / KB are involved.
April 2009	Agreement between NorthQAG and the SIQAG on national paediatric reference ranges.
June 2009	Discussion was held over the number of decimal places that should report depending on the result. It was agreed to change from 1dp to; <ul style="list-style-type: none"> <li>• If the cell count <math>\geq 100 = 0dp</math></li> <li>• All others = 1dp</li> </ul>

## Appendix A: Tests not standardised as not reported

### Test / Analyte Information

Test / Analyte	Decimal Places	Units	LOINC Code
Mean platelet volume (MPV)	1	fl	28542-9

## Appendix B: Tests unable to cumulate

### Test / Analyte Information

Test / Analyte	Decimal Places	Units	LOINC Code
APTT	0	secs	14979-9 (other codes exist)

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## Change History:

Date of change	Change History