Standards for Pathology Informatics in Australia (SPIA)

Harmonised Reference Intervals Chemical Pathology

(v2.0)

Superseding and incorporating the Australian Pathology Units and Terminology Standards and Guidelines (APUTS)



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Standards for Pathology Informatics in Australia (SPIA)

Previously known as the Australian Pathology Units and Terminology Standards and Guidelines (APUTS)

Australasian Reference Intervals - Chemical Pathology*

* AACB Committee for Common Reference Intervals and AACB Paediatric Biochemistry Special Interest Group

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Version	Reason for Change	Author	Date
1.0	Initial Australasian Reference Intervals. Prepared by the AACB Committee for Common Reference Intervals and AACB Paediatric Biochemistry Special Interest Group. To be published by the RCPA Pathology Information, Terminology and Units Standardisation (PITUS-14) Project.	Donna Moore	06-Jun-14
1.1	Fixed minor formatting issues.	Donna Moore	3-Nov-14
2.0	Updated title and added copyright information. Changed preferred name from 'Total Protein' to 'Total protein'. Added harmonised reference intervals for Bilirubin, Creatine kinase, Alanine aminotransferase, Aspartate aminotransferase, Gamma glutamyltransferase and Lipase.	Donna Moore	24-Nov-16

		mical Pathology		Interpretation of refer
Analyte	Age	Reference	Interpretation of age (days)	(units)
Sodium (IN DODA 2051 0)	0d to <1w	(132–147) mmol/L	0 ≤ d ≤ 6	132 ≤ x ≤ 147 mmo
(LN-RCPA: 2951-2)	1w to <18y 18y to <120y	(133–144) mmol/L (135–145) mmol/L	$7 \le d \le 6573$ $6574 \le d \le 43829$	$133 \le x \le 144 \text{ mmo}$ $135 \le x \le 145 \text{ mmo}$
Potassium	0d to <120y	(3.8–6.5) mmol/L	$0.574 \le d \le 45029$ $0 \le d \le 6$	3.8 ≤ x ≤ 6.5 mmol
(LN-RCPA: 2823-3)	1w to <26w	(4.2–6.7) mmol/L	7 ≤ <i>d</i> ≤ 181	$4.2 \le x \le 6.7 \text{ mmol}$
See note 1	26w to <2y	(3.9–5.6) mmol/L	182 ≤ <i>d</i> ≤ 729	$3.9 \le x \le 5.6 \text{ mmol}$
	2y to <18y	(3.6–5.3) mmol/L	730 ≤ <i>d</i> ≤ 6573	3.6 ≤ x ≤ 5.3 mmol/
	18y to <120y	(3.5–5.2) mmol/L	6574 ≤ <i>d</i> ≤ 43829	3.5 ≤ x ≤ 5.2 mmol/
Chloride	0d to <1w	(98–115) mmol/L	0 ≤ <i>d</i> ≤ 6	98 ≤ x ≤ 115 mmol/
(LN-RCPA: 2075-0)	1w to <18y	(97–110) mmol/L	7 ≤ <i>d</i> ≤ 6573	97 ≤ x ≤ 110 mmol/
	18y to <120y	(95–110) mmol/L	6574 ≤ <i>d</i> ≤ 43829	95 ≤ x ≤ 110 mmol/
Bicarbonate	0d to <1w	(15–28) mmol/L	0 ≤ <i>d</i> ≤ 6	15 ≤ x ≤ 28 mmol/l
(LN-RCPA: 1963-8)	1w to <2y	(16–29) mmol/L	7 ≤ d ≤ 729	16 ≤ x ≤ 29 mmol/l
<u> </u>	2y to <10y	(17–30) mmol/L	$730 \le d \le 3651$ $3652 \le d \le 6573$	$17 \le x \le 30 \text{ mmol/l}$ $20 \le x \le 32 \text{ mmol/l}$
<u> </u>	10y to <18y 18y to <120y	(20–32) mmol/L (22–32) mmol/L	6574 ≤ <i>d</i> ≤ 43829	$20 \le x \le 32 \text{ mmol/l}$ $22 \le x \le 32 \text{ mmol/l}$
Creatinine	0d to <1w	(22–32) Milliol/L (22–93) umol/L	$0574 \le d \le 45629$ $0 \le d \le 6$	$22 \le x \le 32 \text{ minol/L}$ $22 \le x \le 93 \text{ umol/L}$
(LN-RCPA: 14682-9)	1w to <4w	(22–93) umol/L (17–50) umol/L	7 ≤ d ≤ 27	22 ≤ X ≤ 93 umol/L 17 ≤ x ≤ 50 umol/L
See note 2 and 3	4w to <2y	(11–36) umol/L	28 ≤ d ≤ 729	$11 \le x \le 36 \text{ umol/L}$
	2y to <6y	(20–44) umol/L	730 ≤ <i>d</i> ≤ 2190	20 ≤ x ≤ 44 umol/L
	6y to <12y	(27–58) umol/L	2191 ≤ <i>d</i> ≤ 4382	27 ≤ x ≤ 58 umol/L
		Male	4000 - 4 - 7 - 7	
-	12y to <15y 15y to <19y	(35–83) umol/L (50–100) umol/L	$4383 \le d \le 5477$ $5478 \le d \le 6938$	$35 \le x \le 83 \text{ umol/L}$ $50 \le x \le 100 \text{ umol/l}$
	19y to <60y	(60–110) umol/L	6939 ≤ <i>d</i> ≤ 21914	$60 \le x \le 100 \text{ diriol/}$
		emale	0939 3 0 3 2 1914	00 3 X 3 1 10 diffol/1
	12y to <15y	(35–74) umol/L	4383 ≤ <i>d</i> ≤ 5477	35 ≤ x ≤ 74 umol/L
	15y to <19y	(38–82) umol/L	5478 ≤ <i>d</i> ≤ 6938	$38 \le x \le 82 \text{ umol/L}$
	19y to <60y	(45–90) umol/L	6939 ≤ <i>d</i> ≤ 21914	45 ≤ x ≤ 90 umol/L
Calcium	0d to <1w	(1.85–2.80) mmol/L	0339 <u>3</u> d <u>3</u> 21314 0 ≤ d ≤ 6	1.85 ≤ x ≤ 2.80 mmo
(LN-RCPA: 2000-8)	1w to <26w	(2.20–2.80) mmol/L	7 ≤ d ≤ 181	2.20 ≤ x ≤ 2.80 mmo
,	26w to <2y	(2.20–2.70) mmol/L	182 ≤ d ≤ 729	2.20 ≤ x ≤ 2.70 mmo
	2y to <18y	(2.20–2.65) mmol/L	730 ≤ <i>d</i> ≤ 6573	2.20 ≤ x ≤ 2.65 mmo
	18y to <120y	(2.10–2.60) mmol/L	6574 ≤ <i>d</i> ≤ 43829	2.10 ≤ x ≤ 2.60 mmo
cium corrected for albumin	18y to <120y	(2.10–2.60) mmol/L	6574 ≤ d ≤ 43829	2.10 ≤ x ≤ 2.60 mmc
(LN-RCPA: 29265-6)		, , ,		
Phosphate (IN BODA 14070 4)	0d to <1w	(1.25–2.85) mmol/L	0 ≤ <i>d</i> ≤ 6	1.25 ≤ x ≤ 2.85 mmo
(LN-RCPA: 14879-1)	1w to <4w	(1.50–2.75) mmol/L	7 ≤ d ≤ 27	1.50 ≤ x ≤ 2.75 mmo
_	4w to <26w	(1.45–2.50) mmol/L	28 ≤ <i>d</i> ≤ 181	1.45 ≤ x ≤ 2.50 mmo
_	26w to <1y	(1.30–2.30) mmol/L	182 ≤ <i>d</i> ≤ 364	1.30 ≤ x ≤ 2.30 mmo
	1y to <4y	(1.10–2.20) mmol/L	$365 \le d \le 1460$	1.10 ≤ x ≤ 2.20 mmo
	4y to <15y	(0.90–2.00) mmol/L	$1461 \le d \le 5477$ $5478 \le d \le 6573$	$0.90 \le x \le 2.00 \text{ mmo}$ $0.80 \le x \le 1.85 \text{ mmo}$
<u> </u>	15y to <18y	(0.80–1.85) mmol/L (0.75–1.65) mmol/L	5478 ≤ d ≤ 6573 6574 ≤ d ≤ 7304	$0.80 \le x \le 1.85 \text{ mmo}$ $0.75 \le x \le 1.65 \text{ mmo}$
	18y to <20y 20y to <120y	(0.75–1.65) mmol/L (0.75–1.50) mmol/L	$7305 \le d \le 43829$	$0.75 \le X \le 1.65 \text{ mmc}$ $0.75 \le X \le 1.50 \text{ mmc}$
Magnesium	20y to <120y 0d to <1w	(0.75–1.50) mmol/L (0.60–1.00) mmol/L	$7305 \le d \le 43629$ $0 \le d \le 6$	$0.75 \le x \le 1.50 \text{ mmc}$ $0.60 \le x \le 1.00 \text{ mmc}$
(LN-RCPA: 2601-3)	1w to <18y	(0.60–1.00) mmol/L (0.65–1.10) mmol/L	0 ≤ d ≤ 6 7 ≤ d ≤ 6573	$0.60 \le x \le 1.00 \text{ mmc}$ $0.65 \le x \le 1.10 \text{ mmc}$
(EN NOT /3, 2001-0)	18y to <120y	(0.65–1.10) mmol/L (0.70–1.10) mmol/L	$7 \le d \le 6573$ $6574 \le d \le 43829$	$0.65 \le x \le 1.10 \text{ mmc}$ $0.70 \le x \le 1.10 \text{ mmc}$
_actate dehydrogenase	10y 10 < 120y	(0.70-1.10) HIIIIOI/L	0017 2 U 2 43028	U.TU = X = 1.1U IIIINC
(LN-RCPA: 14804-9)	18y to <120y	(120–250) U/L		
See note 4		,	6574 ≤ d ≤ 43829	120 ≤ x ≤ 250 U/L
Alkaline phosphatase	0d to <1w	(80–380) U/L	0 ≤ <i>d</i> ≤ 6	80 ≤ x ≤ 380 U/L
(LN-RCPA: 6768-6)	1w to <4w	(120–550) U/L	7 ≤ d ≤ 27	120 ≤ x ≤ 550 U/L
	4w to <26w	(120–650) U/L	28 ≤ <i>d</i> ≤ 181	120 ≤ x ≤ 650 U/L
	26w to <2y	(120–450) U/L	182 ≤ d ≤ 729	120 ≤ x ≤ 450 U/L
	2y to <6y	(120–370) U/L	730 ≤ d ≤ 2190	120 ≤ x ≤ 370 U/L
	6y to <10y	(120–440) U/L	2191 ≤ <i>d</i> ≤ 3651	120 ≤ x ≤ 440 U/L
		Male	0050 4 4 5 5 115	100
	10y to <14y	(130–530) U/L	3652 ≤ d ≤ 5112	130 ≤ x ≤ 530 U/L
	14y to <15y	(105–480) U/L	5113 ≤ d ≤ 5477	105 ≤ x ≤ 480 U/L
	15y to <17y	(80 - 380) U/L	5478 ≤ d ≤ 6208	80 ≤ x ≤ 380 U/L
	17y to <19y	(50–220) U/L	$6209 \le d \le 6938$ $6939 \le d \le 8034$	50 ≤ x ≤ 220 U/L 45 ≤ x ≤ 150 U/L
	19y to <22y 22y to <120y	(45–150) U/L (30–110) U/L	8035 ≤ <i>d</i> ≤ 8034	45 ≤ x ≤ 150 U/L 30 ≤ x ≤ 110 U/L
		emale (30–110) O/L	0000 = U = 40029	00 = X = 110 U/L
	10y to <13y	(100–460) U/L	3652 ≤ <i>d</i> ≤ 4747	100 ≤ x ≤ 460 U/L
	13y to <14y	(70–330) U/L	4748 ≤ <i>d</i> ≤ 5112	70 ≤ x ≤ 330 U/L
	14y to <15y	(50–280) U/L	5113 ≤ d ≤ 5477	50 ≤ x ≤ 280 U/L
	15y to <16y	(45–170) U/L	5478 ≤ <i>d</i> ≤ 5843	45 ≤ x ≤ 170 U/L
	16y to <22y	(35–140) U/L	5844 ≤ <i>d</i> ≤ 8034	35 ≤ x ≤ 140 U/L
	22y to <120y	(30–110) U/L	8035 ≤ <i>d</i> ≤ 43829	30 ≤ x ≤ 110 U/L
Total protein	18y to <120y	(60–80) g/L	6574 ≤ <i>d</i> ≤ 43829	60 ≤ x ≤ 80 g/L
(LN-RCPA: 2885-2) Bilirubin	. J, 10 < 120y			
(LN-RCPA: 14631-6)	18y to <120y	(1 – 20) μmol/L	6574 ≤ <i>d</i> ≤ 43829	1 ≤ x ≤ 20 μmol/L
Creatine kinase		Male		
(LN-RCPA: 2157-6)	18y to <60y	(45 – 250) U/L	6574 ≤ <i>d</i> ≤ 21914	45 ≤ x ≤ 250 U/L
	60y to <120y	(40 – 200) U/L	21915 ≤ <i>d</i> ≤ 43829	40 ≤ x ≤ 200 U/L
		emale		
lanina aminatranafara	18y to <120y	(30 – 150) U/L	6574 ≤ <i>d</i> ≤ 43829	30 ≤ x ≤ 150 U/L
lanine aminotransferase no pyridoxal 5-phosphate)	18y to <120y	Male (5 – 40) U/L	6574 ≤ <i>d</i> ≤ 43829	5 ≤ x ≤ 40 U/L
(LN-RCPA: 1744-2)		emale		0 = X = 40 0/L
	18y to <120y	(5 – 35) U/L	6574 ≤ <i>d</i> ≤ 43829	5 ≤ x ≤ 35 U/L
partate aminotransferase		Male	CE74 - 1 - 40000	F
no pyridoxal 5-phosphate)	18y to <120y	(5 – 35) U/L emale	6574 ≤ <i>d</i> ≤ 43829	5 ≤ x ≤ 35 U/L
(LN-RCPA: 1920-8)	18y to <120y	(5 – 30) U/L	6574 ≤ <i>d</i> ≤ 43829	5 ≤ x ≤ 30 U/L
` '				
mma glutamyltransferase		Male (5 – 50) II/I	6574 < 4 < 42920	5 C V C FO LUI
` '	18y to <120y	Male (5 – 50) U/L emale	6574 ≤ <i>d</i> ≤ 43829	5 ≤ x ≤ 50 U/L
mma glutamyltransferase	18y to <120y	(5 – 50) U/L	6574 ≤ <i>d</i> ≤ 43829 6574 ≤ <i>d</i> ≤ 43829	5 ≤ x ≤ 50 U/L 5 ≤ x ≤ 35 U/L

Unless otherwise specified, the intervals are for serum or plasma for adults (18 years of age and older). The intervals are for use by laboratories using methods which are traceable to JCTLM-listed reference materials, methods and services (except bicarbonate where no references are listed).

Note:

1. For reference intervals between 0w to <18y, the Potassium Reference Intervals listed in the table are for serum specimens only. Below are the Potassium Reference Intervals for when a plasma specimen is collected.

Potassium	0d to <1w	(3.5–6.2) mmol/L	0 ≤ <i>d</i> ≤ 6	$3.5 \le x \le 6.2 \text{ mmol/L}$
Plasma: See note 1	1w to <26w	(3.8–6.4) mmol/L	7 ≤ <i>d</i> ≤ 181	$3.8 \le x \le 6.4 \text{ mmol/L}$
	26w to <2y	(3.5–5.4) mmol/L	182 ≤ <i>d</i> ≤ 729	$3.5 \le x \le 5.4 \text{ mmol/L}$
	2y to <18y	(3.3–4.9) mmol/L	$730 \le d \le 6573$	$3.3 \le x \le 4.9 \text{ mmol/L}$

For reference intervals from 18y to <120y, the Potassium Reference Intervals listed are for use for both serum and plasma. Laboratories testing only heparin plasma may choose to use a lower interval.

traceable to JCTLM-listed reference materials, methods and services (except bicarbonate LN-RCPA is the LOINC code from the RCPA dataset to be used for each analyte.

^{2.} Creatinine RIs are by Vitros enzymatic assay

^{3.} Creatinine has harmonised reference intervals for adults up to the age of 60 years. For older ages laboratories may elect to maintain these.

^{4.} Lactate dehydrogenase [L to P] (IFCC), lactate to pyruvate method (IFCC method).

^{5.} The reference interval for adult serum lipase excludes Siemens Dimension and Ortho Clinical Vitros. There are linear relationships between the "harmonised" assay group and the Dimension and Vitros: "Harmonised" = Dimension x 0.21 - 0.6; "Harmonised" = Vitros x 0.27 + 12.

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Australasian Adult Refe	rence Intervals - Che	emical Pathology		
Analyte	Age	Reference	Interpretation of age (days)	Interpretation of reference (units)
Sodium (LN-RCPA: 2951-2)	18y to <120y	(135-145) mmol/L	6574 ≤ <i>d</i> ≤ 43829	135 ≤ x ≤ 145 mmol/L
Potassium (LN-RCPA: 2823-3) See note 1	18y to <120y	(3.5-5.2) mmol/L	6574 ≤ <i>d</i> ≤ 43829	3.5 ≤ x ≤ 5.2 mmol/L
Chloride (LN-RCPA: 2075-0)	18y to <120y	(95-110) mmol/L	6574 ≤ <i>d</i> ≤ 43829	95 ≤x≤ 110 mmol/L
Bicarbonate (LN-RCPA: 1963-8)	18y to <120y	(22-32) mmol/L	6574 ≤ <i>d</i> ≤ 43829	22 ≤ x ≤ 32 mmol/L
Creatinine		Male	6574 + 1 + 10000	60 1 110 10
(LN-RCPA: 14682-9) See note 2	19y to <60y	(60-110) umol/L emale	6574 ≤ d ≤ 43829 60 ≤ x ≤ 110 umol/L	
	19y to <60y	(45–90) umol/L	6574 ≤ <i>d</i> ≤ 43829	45 ≤ x ≤ 90 umol/L
Calcium (LN-RCPA: 2000-8)	18y to <120y	(2.10-2.60) mmol/L	6574 ≤ <i>d</i> ≤ 43829	2.10 ≤ x ≤ 2.60 mmol/L
Calcium corrected for albumin (LN-RCPA: 29265-6)	18y to <120y	(2.10-2.60) mmol/L	6574 ≤ <i>d</i> ≤ 43829	2.10 ≤ x ≤ 2.60 mmol/L
Phosphate (LN-RCPA: 14879-1) See note 3	20y to <120y	(0.75-1.50) mmol/L	6574 ≤ <i>d</i> ≤ 43829	0.75 ≤ x ≤ 1.50 mmol/L
Magnesium (LN-RCPA: 2601-3)	18y to <120y	(0.70-1.10) mmol/L	6574 ≤ <i>d</i> ≤ 43829	0.70 ≤ x ≤ 1.10 mmol/L
Lactate dehydrogenase (LN-RCPA: 14804-9) See note 4	18y to <120y	(120-250) U/L	6574 ≤ <i>d</i> ≤ 43829	120 ≤ x ≤ 250 U/L
Alkaline phosphatase (LN-RCPA: 6768-6) See note 5	22y to <120y	(30-110) U/L	6574 ≤ <i>d</i> ≤ 43829	30 ≤x≤ 110 U/L
Total protein (LN-RCPA: 2885-2)	18y to <120y	(60-80) g/L	6574 ≤ <i>d</i> ≤ 43829	60 ≤ x ≤ 80 g/L
Bilirubin (LN-RCPA: 14631-6)	18y to <120y	(1 – 20) μmol/L	6574 ≤ <i>d</i> ≤ 43829	1 ≤ x ≤ 20 μmol/L
Creatine kinase		Male		
(LN-RCPA: 2157-6)	18y to <60y	(45 – 250) U/L	6574 ≤ <i>d</i> ≤ 21914	45 ≤ x ≤ 250 U/L
	60y to <120y	(40 – 200) U/L	21915 ≤ <i>d</i> ≤ 43829	40 ≤ x ≤ 200 U/L
	Female			
	18y to <120y	(30 – 150) U/L	6574 ≤ <i>d</i> ≤ 43829	30 ≤ x ≤ 150 U/L
Alanine aminotransferase		Male		
(no pyridoxal 5-phosphate)	18y to <120y	(5 – 40) U/L	6574 ≤ <i>d</i> ≤ 43829	5 ≤ x ≤ 40 U/L
(LN-RCPA: 1744-2)	F	emale		
	18y to <120y	(5 – 35) U/L	6574 ≤ <i>d</i> ≤ 43829	5 ≤ x ≤ 35 U/L
Aspartate aminotransferase		Male		
(no pyridoxal 5-phosphate)	18y to <120y	(5 – 35) U/L	6574 ≤ <i>d</i> ≤ 43829	5 ≤ x ≤ 35 U/L
(LN-RCPA: 1920-8)	F	emale		
	18y to <120y	(5 – 30) U/L	6574 ≤ <i>d</i> ≤ 43829	5 ≤ x ≤ 30 U/L
Gamma glutamyltransferase		Male		
(LN-RCPA: 2324-2)	18y to <120y	(5 – 50) U/L	6574 ≤ <i>d</i> ≤ 43829	5 ≤ x ≤ 50 U/L
	F	emale		
	18y to <120y	(5 – 35) U/L	6574 ≤ <i>d</i> ≤ 43829	5 ≤ x ≤ 35 U/L
Lipase (LN-RCPA: 3040-3) See note 6	18y to <120y	(10 – 60) U/L	6574 ≤ <i>d</i> ≤ 43829	10 ≤ x ≤ 60 U/L

Unless otherwise specified, the intervals are for serum or plasma for adults (18 years of age and older). The intervals are for use by laboratories using methods which are traceable to JCTLM-listed reference materials, methods and services (except bicarbonate where no references are listed).

LN-RCPA is the LOINC code from the RCPA dataset to be used for each analyte.

Note:

- 1. This range is proposed for use for both serum and plasma. Laboratories testing only heparin plasma may choose to use a lower interval.
- 2. Creatinine has harmonised reference intervals for adults up to the age of 60 years. For older ages laboratories may elect to maintain these.
- 3. Starting at age 20 years to align with paediatric intervals.
- 4. Lactate dehydrogenase [L to P] (IFCC), lactate to pyruvate method (IFCC method).
- 5. Starting at age 22 years to align with paediatric intervals.
- 6. The reference interval for adult serum lipase excludes Siemens Dimension and Ortho Clinical Vitros. There are linear relationships between the "harmonised" assay group and the Dimension and Vitros: "Harmonised" = Dimension x 0.21 0.6; "Harmonised" = Vitros x 0.27 +12.

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			Interpretation of age	Interpretation of
Analyte	Age	Reference	(days)	reference (units)
Sodium	0d to <1w	(132-147) mmol/L	0 ≤ <i>d</i> ≤ 6	132 ≤ x ≤ 147 mmo
(LN-RCPA: 2951-2)	1w to <18y	(133-144) mmol/L	7 ≤ <i>d</i> ≤ 6573	133 ≤ x ≤ 144 mmo
_	18y to <120y	(135-145) mmol/L	6574 ≤ <i>d</i> ≤ 43829	135 ≤ x ≤ 145 mmo
Potassium	0d to <1w	(3.8-6.5) mmol/L	0 ≤ <i>d</i> ≤ 6	$3.8 \le x \le 6.5 \text{ mmol}$
(LN-RCPA: 2823-3)	1w to <26w	(4.2–6.7) mmol/L	7 ≤ <i>d</i> ≤ 181	$4.2 \le x \le 6.7 \text{ mmol}$
See note 1	26w to <2y	(3.9–5.6) mmol/L	182 ≤ <i>d</i> ≤ 729	$3.9 \le x \le 5.6 \text{ mmol}$
	2y to <18y	(3.6–5.3) mmol/L	$730 \le d \le 6573$	$3.6 \le x \le 5.3 \text{ mmol}$
Chloride	18y to <120y 0d to <1w	(3.5–5.2) mmol/L	$6574 \le d \le 43829$ $0 \le d \le 6$	$3.5 \le x \le 5.2 \text{ mmol}$ $98 \le x \le 115 \text{ mmol}$
(LN-RCPA: 2075-0)	1w to <18y	(98–115) mmol/L (97–110) mmol/L	0 ≤ <i>d</i> ≤ 6 7 ≤ <i>d</i> ≤ 6573	$98 \le x \le 113 \text{ minor}$ $97 \le x \le 110 \text{ mmor}$
(217 11.2073 0)	18y to <120y	(95–110) mmol/L	$6574 \le d \le 6373$	95 ≤ x ≤ 110 mmol
Bicarbonate	0d to <1w	(15–28) mmol/L	$0574 \le d \le 45025$ $0 \le d \le 6$	15 ≤ x ≤ 28 mmol/
(LN-RCPA: 1963-8)	1w to <2y	(16–29) mmol/L	7 ≤ d ≤ 729	16 ≤ x ≤ 29 mmol/
	2y to <10y	(17–30) mmol/L	$730 \le d \le 3651$	$17 \le x \le 30 \text{ mmol/}$
	10y to <18y	(20–32) mmol/L	$3652 \le d \le 6573$	$20 \le x \le 32 \text{ mmol/}$
	18y to <120y	(22–32) mmol/L	6574 ≤ <i>d</i> ≤ 43829	22 ≤ x ≤ 32 mmol/
Creatinine	0d to <1w	(22–93) umol/L	$0 \le d \le 6$	22 ≤ x ≤ 93 umol/l
(LN-RCPA: 14682-9)	1w to <4w	(17–50) umol/L	7 ≤ d ≤ 27	$17 \le x \le 50 \text{ umol/l}$
See note 2 and 3	4w to <2y	(11–36) umol/L	28 ≤ <i>d</i> ≤ 729	$11 \le x \le 36 \text{ umol/l}$
	2y to <6y	(20–44) umol/L	730 ≤ <i>d</i> ≤ 2190	20 ≤ x ≤ 44 umol/l
	6y to <12y	(27–58) umol/L	2191 ≤ <i>d</i> ≤ 4382	27 ≤ x ≤ 58 umol/
		Male		
	12y to <15y	(35-83) umol/L	4383 ≤ <i>d</i> ≤ 5477	35 ≤ x ≤ 83 umol/
	15y to <19y	(50-100) umol/L	5478 ≤ <i>d</i> ≤ 6938	50 ≤ x ≤ 100 umol/
	19y to <60y	(60-110) umol/L	6939 ≤ <i>d</i> ≤ 21914	60 ≤ x ≤ 110 umol/
	F	emale		
	12y to <15y	(35-74) umol/L	$4383 \le d \le 5477$	$35 \le x \le 74 \text{ umol/l}$
	15y to <19y	(38-82) umol/L	5478 ≤ <i>d</i> ≤ 6938	$38 \le x \le 82 \text{ umol/l}$
	19y to <60y	(45-90) umol/L	$6939 \le d \le 21914$	45 ≤ x ≤ 90 umol/l
Calcium	0d to <1w	(1.85-2.80) mmol/L	$0 \le d \le 6$	1.85 ≤ x ≤ 2.80 mm
(LN-RCPA: 2000-8)	1w to <26w	(2.20-2.80) mmol/L	$7 \le d \le 181$	2.20 ≤ x ≤ 2.80 mm
	26w to <2y	(2.20-2.70) mmol/L	182 ≤ <i>d</i> ≤ 729	2.20 ≤ x ≤ 2.70 mm
	2y to <18y	(2.20-2.65) mmol/L	730 ≤ <i>d</i> ≤ 6573	2.20 ≤ x ≤ 2.65 mm
	18y to <120y	(2.10-2.60) mmol/L	6574 ≤ <i>d</i> ≤ 43829	2.10 ≤ x ≤ 2.60 mm
Phosphate	0d to <1w	(1.25-2.85) mmol/L	0 ≤ <i>d</i> ≤ 6	1.25 ≤ x ≤ 2.85 mmc
(LN-RCPA: 14879-1)	1w to <4w	(1.50-2.75) mmol/L	7 ≤ <i>d</i> ≤ 27	1.50 ≤ x ≤ 2.75 mmc
	4w to <26w	(1.45–2.50) mmol/L	28 ≤ <i>d</i> ≤ 181	1.45 ≤ x ≤ 2.50 mmc
	26w to <1y	(1.30-2.30) mmol/L	182 ≤ <i>d</i> ≤ 364	1.30 ≤ x ≤ 2.30 mmc
	1y to <4y	(1.10-2.20) mmol/L	365 ≤ <i>d</i> ≤ 1460	1.10 ≤ x ≤ 2.20 mmc
_	4y to <15y	(0.90-2.00) mmol/L	$1461 \le d \le 5477$	0.90 ≤ x ≤ 2.00 mm
	15y to <18y	(0.80–1.85) mmol/L	5478 ≤ d ≤ 6573	$0.80 \le x \le 1.85 \text{ mm}$
	18y to <20y	(0.75–1.65) mmol/L	6574 ≤ <i>d</i> ≤ 7304	$0.75 \le x \le 1.65 \text{ mm}$
Magnesium	20y to <120y	(0.75–1.50) mmol/L	7305 ≤ d ≤ 43829	0.75 ≤ x ≤ 1.50 mmc
(LN-RCPA: 2601-3)	0d to <1w	(0.60–1.00) mmol/L	$0 \le d \le 6$	$0.60 \le x \le 1.00 \text{ mm}$
(LIV-RCFA. 2001-3)	1w to <18y	(0.65–1.10) mmol/L	$7 \le d \le 6573$ $6574 \le d \le 43829$	$0.65 \le x \le 1.10 \text{ mm}$
kaline phosphatase	18y to <120y	(0.70–1.10) mmol/L		0.70 ≤ x ≤ 1.10 mmc
(LN-RCPA: 6768-6)	0d to <1w 1w to <4w	(80-380) U/L (120-550) U/L	$0 \le d \le 6$ $7 \le d \le 27$	$80 \le x \le 380 \text{ U/L}$ $120 \le x \le 550 \text{ U/L}$
(EA ROLAL 0700-0)	4w to <26w	(120-550) U/L (120-650) U/L	$7 \le d \le 27$ $28 \le d \le 181$	$120 \le x \le 550 \text{ U/L}$ $120 \le x \le 650 \text{ U/L}$
<u> </u>	26w to <2y	(120-450) U/L	$182 \le d \le 181$ $182 \le d \le 729$	$120 \le x \le 630 \text{ U/I}$ $120 \le x \le 450 \text{ U/I}$
 	2y to <6y	(120-430) U/L	$730 \le d \le 729$	$120 \le x \le 430 \text{ G/H}$ $120 \le x \le 370 \text{ U/H}$
 	6y to <10y	(120-440) U/L	$730 \le d \le 2190$ $2191 \le d \le 3651$	$120 \le x \le 370 \text{ G/H}$ $120 \le x \le 440 \text{ U/H}$
	•	Male		
	10y to <14y	(130-530) U/L	3652 ≤ <i>d</i> ≤ 5112	130 ≤ x ≤ 530 U/L
	14y to <15y	(105–480) U/L	5113 ≤ <i>d</i> ≤ 5477	105 ≤ x ≤ 480 U/I
	15y to <17y	(80 - 380) U/L	5478 ≤ <i>d</i> ≤ 6208	80 ≤ x ≤ 380 U/L
	17y to <19y	(50-220) U/L	6209 ≤ <i>d</i> ≤ 6938	50 ≤ x ≤ 220 U/L
	19y to <22y	(45-150) U/L	6939 ≤ <i>d</i> ≤ 8034	45 ≤ x ≤ 150 U/L
	22y to <120y	(30-110) U/L	8035 ≤ <i>d</i> ≤ 43829	30 ≤ x ≤ 110 U/L
		emale		
	10y to <13y	(100-460) U/L	3652 ≤ <i>d</i> ≤ 4747	100 ≤ x ≤ 460 U/l
	13y to <14y	(70-330) U/L	4748 ≤ <i>d</i> ≤ 5112	70 ≤ x ≤ 330 U/L
	14y to <15y	(50-280) U/L	5113 ≤ <i>d</i> ≤ 5477	50 ≤ x ≤ 280 U/L
	15y to <16y	(45-170) U/L	5478 ≤ <i>d</i> ≤ 5843	45 ≤ x ≤ 170 U/L
	16y to <22y	(35-140) U/L	5844 ≤ <i>d</i> ≤ 8034	35 ≤ x ≤ 140 U/L
	22y to <120y	(30-110) U/L	8035 ≤ <i>d</i> ≤ 43829	30 ≤ x ≤ 110 U/L

 $\ensuremath{\mathsf{LN-RCPA}}$ is the LOINC code from the RCPA dataset to be used for each analyte.

Note:

^{1.} Potassium Reference Intervals are for serum specimens. Below are the Potassium Reference Intervals for when a plasma specimen is collected.

Potassium	0d to <1w	(3.5-6.2) mmol/L	$0 \le d \le 6$	$3.5 \le x \le 6.2 \text{ mmol/L}$
Plasma: See note 1	1w to <26w	(3.8-6.4) mmol/L	7 ≤ <i>d</i> ≤ 181	$3.8 \le x \le 6.4 \text{ mmol/L}$
	26w to <2y	(3.5-5.4) mmol/L	$182 \le d \le 730$	$3.5 \le x \le 5.4 \text{ mmol/L}$
	2y to <18y	(3.3-4.9) mmol/L	$731 \le d \le 6574$	$3.3 \le x \le 4.9 \text{ mmol/L}$

^{2.} Reference intervals for patients <19y are specific for labs who use the Ortho Vitros Enzymatic creatinine assay.

^{3.} Creatinine has harmonised reference intervals for patients up to the age 60 years. The reference intervals above this age are currently under review.