

Notification of Reference range changes for move to Beckman equipment - Updated January 2017

The Pathology First laboratories will be changing analytical platforms for many of our tests. In light of these changes we have updated some of our reference ranges. Please see below a list of tests with the old and new reference ranges.

For results or sample enquiries please contact
Pathology First results enquiry lines on 01268 968273 or 01268 968279 - 9am-6pm

Test	SEX	AGE (Y*)	Old	New Ref Range	Source	Comment
UREA (mmol/L)	M/F	<7d	(0.7 - 6.7)	(0.8 - 5.5)	Path Harmony	
		30d	(1.4 - 5.4)			
		1		(1.0 - 5.5)		
		13	(2.5 - 6.0)	(2.5 - 6.5)		
		16		(2.5 - 7.8)		
17 - adult	(2.5 - 7.8)					
CREATININE (umol/L)	M/F	<1m	see comment	(22 - 90)	Beckman	
		12m	(14 - 34)	(11 - 34)		
		2	(15 - 31)			
		3	(15 - 31)	(21 - 65)		
		5	(23 - 37)			
		7	(25 - 42)			
		9	(30 - 47)			
		11	(29 - 56)			
		13	(39 - 60)			
		14				
		15	(40 - 68)			
	M	18	(59 - 98)	no change		
	F	18	(45 - 83)	(45 - 83)	no change	
TOTAL PROTEIN (g/L)	M/F	<12m	(60 - 80)	(30 - 45)	Path Harmony	
		16	(60 - 80)	(30 - 50)		
		17 - adult	(60 - 80)	(60 - 80)		
ALT (u/L)	M		(0 - 41)	<50	Beckman	
	F		(0 - 33)	<35		
Adjusted CALCIUM (mmol/L)	M/F	<14d	(1.90 - 2.80)	(2.0 - 2.7)	Path Harmony	
		30d	(2.00 - 2.80)			
		6m	(2.00 - 2.80)	(2.2 - 2.7)	Path Harmony	
		1	(2.30 - 2.70)			
		2	(2.30 - 2.65)			
		16	(2.20 - 2.60)			
17 - adult	(2.20 - 2.60)	(2.20 - 2.60)	no change			
B12 (ng/L)			(180 - 900)	(150 - 900)	Regional	
GGT (u/L)	M		(10 - 71)	<55	Beckman	
	F		(6 - 42)	<38		
MG (mmol/L)		<30d		(0.6 - 1.0)	Path Harmony	
		1m - adult	(0.7 - 1.0)	(0.7 - 1.0)		
AST (u/L)	F		(< 32)	<35	Beckman	
	M		(< 40)	<50		
ALP (u/L)	M/F	<5d	(30 - 250)	(70 - 380)	Path Harmony	
		30d	(30 - 460)			
		1	(30 - 460)	(60 - 425)		
		6	(30 - 280)			
	12	(30 - 300)				
	F	17	(30 - 187)	(30 - 130)	Path Harmony	
	M	17	(30 - 390)			
>17	(30 - 130)					
BILIRUBIN (umol/L)		>14d	(0 - 21)		no change	
CONJUGATED BILIRUBIN (umol/L)			(< 6.0)	<3.4	Path Harmony	
FOLATE (ug/L)			(> 4.6)	> 2.5	Regional	
AMMONIA (umol/L)	M	<1M	(16 - 50)	Sick or prem <150, neonate <100	Path Harmony	no sex related difference
		16		<50		
		17 - Adult		(16 - 53)		
	F	<1M	(11 - 51)	Sick or prem <150, neonate <100	Path Harmony	
		16		<50		
		17 - Adult		(16 - 53)		

Test	SEX	AGE (Y*)	Old	New Ref Range	Source	Comment
LACTATE (mmol/L)			(< 2.2)	(0.6 - 2.5)	Path Harmony	
TSH (mu/L)		<6d	(0.70 - 15.2)	no range	Caliper	Paediatric range not available age < 20 days
		20d	(0.72 - 11.0)			
		3m	(0.72 - 11.0)			
		12m	(0.73 - 8.35)	(0.79 - 5.85)	Leeds Study	
		6	(0.70 - 6.00)			
		11	(0.60 - 4.85)			
		20	(0.50 - 4.30)			
>20	(0.27 - 4.20)					
FT4 (pmol/L)		<6d	(11.0 - 32.0)	no range	Leeds Study	Paediatric range not available age < 20 days
		20d	(11.5 - 28.3)			
		3m	(11.5 - 28.3)			
		1	(11.9 - 25.6)	(8.4 - 19.1)	Leeds Study	
		6	(12.3 - 22.8)			
		11	(12.5 - 21.5)			
		20	(12.6 - 21.0)			
101	(12.0 - 22.0)					
FT3 (pmol/L)		<6d	(2.7 - 9.7)	no range	Beckman	Paediatric range not available age < 20 days
		20d	(3.0 - 9.3)			
		3M	(3.0 - 9.3)			
		1	(3.3 - 8.9)	(3.8 - 6.0)	Beckman	
		6	(3.7 - 8.5)			
		11	(3.9 - 8.0)			
		20	(3.9 - 7.7)			
101	(3.1 - 6.8)					
TRANSFERRIN			(2.0 - 3.2)	(2.0 - 3.6)	Beckman	
TRANSFERRIN SATURATION (%)	F		(15 - 50)	(15 - 45)	BSCH Guidelines Genetic HFE (2000)	
	M		(15 - 50)	(15 - 50)		
ALPHA 1 ANTITRYPSIN (g/L)		<6M	(0.9 - 2.2)	(0.8 - 1.8)	Protein Reference Unit	Updated age thresholds
		1	(0.8 - 1.8)	(1.1 - 2.0)		
		5	(1.1 - 2.0)	(1.1 - 2.2)		
		10	(1.1 - 2.2)	(1.4 - 2.3)		
		15	(1.4 - 2.3)	(1.2 - 2.0)		
		18	(1.2 - 2.0)	(1.1 - 2.1)		
LH (u/L)	F	<11Y	(2.4 - 12.6)	no range	Beckman	no range in paed <11yrs
	F	>11	(2.4 - 12.6)	(2.1 - 10.9)		
				(19.2 - 103)		
				(1.2 - 12.9)		
				(10.9 - 58.6)		
	M	<11Y	(1.7 - 8.6)	no range		
			(1.2 - 8.6)			
FSH (u/L)	F	<11Y	no range	no range	Beckman	no range in paed <11yrs
		>11	(3.5 - 12.5)	(3.9 - 8.8)		
				(4.5 - 22.5)		
				(1.8 - 5.1)		
				(16.7 - 113.6)		
	M	<11Y	no range	no range		
			(1.3 - 19.3)			
OESTRADIOL (pmol/L)	M	<1Y	(no paed range)	(<193)	Caliper	
		10	(< 73.4)	(<73)	Beckman	
		11	(28 - 156)	(<173)	Beckman	
	F	<1Y	(no paed range)	(<193)	Caliper	
		10	(22 - 99)	(<73)	Beckman	
		11	(46 - 607)	(99 - 448)	Beckman	
		>11	(315 - 1828)	(349 - 1590)	Beckman	
			(161 - 774)	(180 - 1068)	Beckman	
	Less than 201	Less than 150	Beckman			
PROGESTERONE (nmol/L)	Day 21 levels:-				Based on NICECG156	
	Ovulation unlikely:		(<20)	(<16)		
	Ovulation possible:		(20 - 30)	(16 - 30)		
	Ovulation probable:		(>30)	(>30)		
PARATHYROID HORMONE (PTH) (pmol/L)			(1.6 - 6.9)	(1.3 - 9.3)	Beckman	
TESTOSTERONE (nmol/L)	M	<6M	(< 6)	(<9.85)	Caliper	
		1	(< 0.2)			
		1.5Y	(< 0.9)			
		5	(< 0.9)	(<0.35)		
		6	(< 1.0)			
		7		(<0.62)		
		8				
		11	According to Tanner stage I <0.09	(<1.63)		
			II <15			
		18	III 2.3 - 27 IV 6.2 - 26.5 V 6.5 - 30.6			
		49	(8.6 - 29.0)	(6.1 - 27.1)		
	101	(6.7 - 25.7)				
	<1Y		(< 0.2)	(<2.19)	Caliper	
	1.5Y					
	6			(<0.35)		
	7	(< 0.4)	(<0.62)			
	8	According to Tanner stage	(<0.62)			

Test	SEX	AGE (Y*)	Old	New Ref Range	Source	Comment	
	F	11	I <0.21	(<1.63)	Beckman		
		18	II <0.36 III <0.82 IV <0.93 V 0.16 – 1.33	(<2.4)			
		49	(0.3 - 1.7)				
		101	(0.1 - 1.4)				
SHBG (nmol/L)	M	30d	no range	(12 - 116)	Caliper*		
		12m		(>32)			
		7		(53 - 174)			
		10		(45 - 144)			
	12		(16 - 132)				
	49	(18 - 54)	(13 - 90)	Beckman			
	101	(21 - 77)					
	F	30d	no range	(12 - 116)	Caliper*		
12m		(>32)					
7		(53 - 174)					
10		(45 - 144)					
12		(16 - 132)					
49	(32 - 128)	(18 - 136)	Beckman				
101	(27 - 128)	(17 - 125)					
FREE ANDROGEN INDEX	M	<17Y	no range	no range	no change	no range in paed <17yrs	
		49	(> 35)				
		101	(> 25)	(24 - 110)	Beckman		
	F	<16Y	no range	no range	no change		
		49	(< 6)	(<11)			
		101	(< 4)	(<7)	Beckman		
Thyroid peroxidase antibodies TPO, (iu/L)			(<34)	(<9)	Beckman		
CARBAMAZEPINE (mg/L)			(3.8 - 11.8)	(4 - 12)	Path Harmony		
LDH (u/L)		<5d	(240 - 480)	(<1732)	Beckman		
		6m		(<975)			
		6		(<615)			
		>6		(208 - 378)			
CORTISOL (nmol/L)	Early morning sample		171 - 536	(185 - 624)	Beckman	AM Cortisol	
	Random sample		65 - 536				
PROLACTIN (mu/L)	F	Pre-menopausal		(71 - 566)	Beckman		
		Post-menopausal		(58 - 416)			
	M	none quoted		(<278)			
PSA (ng/ml)	M	<50	(0.1 - 2.5)	<3	UKNSC Screening for Prostate Cancer Review 2015	Referral thresholds	
		<60	(0.1 - 3.5)				
		<70	(0.1 - 4.5)				
		<80	(0.1 - 6.5)				
		≥80	(0.1 - 7.5)				no range
CSF TOTAL PROTEIN (g/L)		<1m	(0.20 - 1.70)	(0.15 - 1.30)	Beckman		
		>1m	(0.23 - 0.38)	(0.15 - 0.45)			
24 HR URINE SODIUM (mmol/L)			(80 - 220)	(40 - 220)	Beckman		
24 HR URINE POTASSIUM (mmol/L)			(30 - 90)	(25 - 125)	Beckman		
24 URINE UREA (mmol/L)			(170 - 580)	(250 - 570)	Beckman		
ALBUMIN/ CREATININE RATIO	M		(< 2.5)	<3	NICE CG182 CKD		
	F		(< 3.5)	<3			
24 HR URINE URIC ACID (mmol/L)			(1.2 - 5.9)	(1.5 - 4.5)	Path Harmony		

Key Sex Age
M - Male d - day
F - Female M - month
Y - years