

Chemical Pathology Analytical Performance Specifications

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Alcohol / Ammonia

Analyte	Lower Limit	Upper Limit	Basis	Level
Alcohol	+ or - 2.0 ≤ 20.0 mmol/L	+ or - 10% > 20.0 mmol/L	Prof. Opinion	
Ammonia	+ or - 5 ≤ 50 umol/L/L	+ or - 10% > 50 umol/L/L	Prof. Opinion	

Anti-Fungals

Analyte	Lower Limit	Upper Limit	Basis	Level
Itraconazole	+ or - 0.1 ≤ 1.0 mg/L	+ or - 10% > 1.0 mg/L	Prof. Opinion	
Fluconazole	+ or - 2.0 ≤ 20.0 mg/L	+ or - 10% > 20.0 mg/L	Prof. Opinion	
Hydroxyitraconazole	+ or - 0.2 ≤ 2.0 mg/L	+ or - 10% > 2.0 mg/L	Prof. Opinion	
Posaconazole	+ or - 0.1 ≤ 1.0 mg/L	+ or - 10% > 1.0 mg/L	Prof. Opinion	
Voriconazole	+ or - 0.2 ≤ 2.0 mg/L	+ or - 10% > 2.0 mg/L	Prof. Opinion	
Flucytosine	+ or - 10 ≤ 100 mg/L	+ or - 10% > 100 mg/L	Prof. Opinion	

Antibiotics

Analyte	Lower Limit	Upper Limit	Basis	Level
Amikacin	+ or - 2.0 ≤ 19.9 mg/L	+ or - 10% > 19.9 mg/L	Prof. Opinion	
Gentamicin	+ or - 0.2 ≤ 2.0 mg/L	+ or - 10% > 2.0 mg/L	Prof. Opinion	
Tobramycin	+ or - 0.2 ≤ 2.0 mg/L	+ or - 10% > 2.0 mg/L	Prof. Opinion	
Vancomycin	+ or - 2.0 ≤ 20.3 mg/L	+ or - 10% > 20.3 mg/L	Prof. Opinion	

Bile Acids

Analyte	Lower Limit	Upper Limit	Basis	Level
Total Bile Acids	+ or - 4 ≤ 40 umol/L	+ or - 10% > 40 umol/L	Prof. Opinion	



Biogenic Amines

Analyte	Lower Limit	Upper Limit	Basis	Level
Adrenaline	+ or - $30 \leq 100$ nmol/L	+ or - 30% > 100 nmol/L	Total Error	Optimal
Dopamine	+ or - $0.20 \leq 2.0$ μ mol/L	+ or - 10% > 2.0 μ mol/L	Imprecision	Optimal
5HIAA	+ or - $8 \leq 40$ μ mol/L	+ or - 20% > 40 μ mol/L	Imprecision	Desirable
HMMA	+ or - $6 \leq 40$ μ mol/L	+ or - 15% > 40 μ mol/L	Total Error	Optimal
HVA	+ or - $6 \leq 40$ μ mol/L	+ or - 15% > 40 μ mol/L	Imprecision	Desirable
Metanephrine	+ or - $0.2 \leq 1.0$ μ mol/L	+ or - 20% > 1.0 μ mol/L	Total Error	Optimal
Noradrenaline	+ or - $75 \leq 500$ nmol/L	+ or - 15% > 500 nmol/L	Total Error	Optimal
Normetanephrine	+ or - $0.4 \leq 2.0$ μ mol/L	+ or - 20% > 2.0 μ mol/L	Total Error	Optimal
3-Methoxytyramine	+ or - $0.3 \leq 2.0$ μ mol/L	+ or - 15% > 2.0 μ mol/L	Total Error	Optimal
Serotonin	+ or - $0.2 \leq 1.0$ μ mol/L	+ or - 20% > 1.0 μ mol/L	Prof. Opinion	

Blood Gases

Analyte	Lower Limit	Upper Limit	Basis	Level
Chloride	+ or - $3 \leq 100$ mmol/L	+ or - 3% > 100 mmol/L	Total Error	Minimal
Glucose	+ or - $0.4 \leq 5.0$ mmol/L	+ or - 8% > 5.0 mmol/L	Imprecision	Desirable
Ionised Calcium	+ or - $0.04 \leq 1.00$ mmol/L	+ or - 4% > 1.00 mmol/L	Total Error	Minimal
Lactate	+ or - $0.5 \leq 5.0$ mmol/L	+ or - 8% > 5.0 mmol/L	Imprecision	Optimal
pH	+ or - 0.04	+ or - 0.04	Prof. Opinion	
pCO ₂	+ or - $2.0 \leq 34.0$ mm Hg	+ or - 6% > 34.0 mm Hg	Total Error	Desirable
pO ₂	+ or - $2.0 \leq 34.0$ mm Hg	+ or - 6% > 34.0 mm Hg	CO ₂ CV _i & CV _g	Desirable
Potassium	+ or - $0.2 \leq 4.0$ mmol/L	+ or - 5% > 4.0 mmol/L	Imprecision	Desirable
Sodium	+ or - $3 \leq 150$ mmol/L	+ or - 2% > 150 mmol/L	Total Error	Minimal
Urea	+ or - $0.5 \leq 4.0$ mmol/L	+ or - 12% > 4.0 mmol/L	Imprecision	Desirable
Creatinine	+ or - $8.0 \leq 100.0$ μ mol/L	+ or - 8% > 100.0 μ mol/L	Imprecision	Minimal

BNP

Analyte	Lower Limit	Upper Limit	Basis	Level
NT-Pro-BNP	+ or - $25 \leq 125$ ng/L	+ or - 20% > 125 ng/L	Total Error	Optimal
BNP	+ or - $20 \leq 100$ ng/L	+ or - 20% > 100 ng/L	Prof. Opinion	



Body Fluids

Analyte	Lower Limit	Upper Limit	Basis	Level
Albumin	+ or - 2.0 ≤ 33.0 g/L	+ or - 6% > 33.0 g/L		
Amylase	+ or - 20 ≤ 100 U/L	+ or - 20% > 100 U/L		
Cholesterol	+ or - 0.3 ≤ 2.5 mmol/L	+ or - 12% > 2.5 mmol/L		
Creatinine	+ or - 16 ≤ 100 umol/L	+ or - 16% > 100 umol/L		
Glucose	+ or - 0.4 ≤ 5.0 mmol/L	+ or - 8% > 5.0 mmol/L		
Lactate	+ or - 1.0 ≤ 4.0 mmol/L	+ or - 25% > 4.0 mmol/L		
Lactate Dehydrogenase (L->P)	+ or - 20 ≤ 250 U/L	+ or - 8% > 250 U/L		
Lipase	+ or - 24 ≤ 60 U/L	+ or - 40% > 60 U/L		
Osmolality	+ or - 8 ≤ 266 mmol/kg	+ or - 3% > 266 mmol/kg		
pH	+ or - 0.2	+ or - 0.2		
Potassium	+ or - 0.4 ≤ 4.0 mmol/L	+ or - 10% > 4.0 mmol/L		
Protein	+ or - 3.0 ≤ 60.0 g/L	+ or - 5% > 60.0 g/L		
Sodium	+ or - 6 ≤ 150 mmol/L	+ or - 4% > 150 mmol/L		
Triglycerides	+ or - 0.3 ≤ 1.2 mmol/L	+ or - 25% > 1.2 mmol/L		
Urate	+ or - 0.060 ≤ 0.380 mmol/L	+ or - 16% > 0.380 mmol/L		
Urea	+ or - 1.0 ≤ 4.0 mmol/L	+ or - 24% > 4.0 mmol/L		
CA 19-9	+ or - 12 ≤ 40 kU/L	+ or - 30% > 40 kU/L		
CEA	+ or - 1.2 ≤ 5.0 ug/L	+ or - 24% > 5.0 ug/L		

Co-Oximetry

Analyte	Lower Limit	Upper Limit	Basis	Level
Haemoglobin Concentration	+ or - 5 ≤ 100 g/L	+ or - 5% > 100 g/L	Total Error	Desirable
Fractional Oxyhaemoglobin	+ or - 3 ≤ 75.0%	+ or - 4% > 75.0%	Prof. Opinion	
Fractional Carboxyhaemoglobin	+ or - 1.0 ≤ 5.0%	+ or - 20% > 5.0%	Prof. Opinion	
Fractional Methaemoglobin	+ or - 2.0 ≤ 20%	+ or - 10% > 20%	Prof. Opinion	

CRP				
Analyte	Lower Limit	Upper Limit	Basis	Level
CRP	+ or - $0.8 \leq 4.0$ mg/L	+ or - 20% > 4.0 mg/L		

CSF				
Analyte	Lower Limit	Upper Limit	Basis	Level
Albumin	+ or - $0.02 \leq 0.1$ g/L	+ or - 20% > 0.1 g/L	Prof. Opinion	
Glucose	+ or - $0.2 \leq 2.0$ mmol/L	+ or - 10% > 2.0 mmol/L	Prof. Opinion	
Immunoglobulin G	+ or - $0.02 \leq 0.10$ g/L	+ or - 20% > 0.10 g/L	Prof. Opinion	
Lactate	+ or - $0.3 \leq 3.0$ mmol/L	+ or - 10% > 3.0 mmol/L	Prof. Opinion	
Total Protein	+ or - $0.05 \leq 0.50$ g/L	+ or - 10% > 0.50 g/L	Prof. Opinion	
Bilirubin Concentration	+ or - $0.12 \leq 0.60$ μ mol/L	+ or - 20% > 0.60 μ mol/L	Prof. Opinion	
Xanthochromia – Bilirubin screen	+ or - $0.002 \leq 0.007$ AU	+ or - 20% > 0.007 AU	Prof. Opinion	
Xanthochromia – Haemoglobin screen	+ or - $0.02 \leq 0.100$ AU	+ or - 20% > 0.100 AU	Prof. Opinion	

Endocrine				
Analyte	Lower Limit	Upper Limit	Basis	Level
AFP	+ or - $2 \leq 17$ kIU/L	+ or - 12% > 17 kIU/L	Imprecision	Desirable
Aldosterone	+ or - $24 \leq 160$ pmol/L	+ or - 15% > 160 pmol/L	Imprecision	Optimal
Androstenedione	+ or - $1.5 \leq 10$ nmol/L	+ or - 15% > 10 nmol/L	Total Error	Optimal
CA125	+ or - $6 \leq 50$ kU/L	+ or - 12% > 50 kU/L	Imprecision	Optimal
CEA	+ or - $0.6 \leq 5.0$ μ g/L	+ or - 12% > 5.0 μ g/L	Imprecision	Desirable
Cortisol	+ or - $15 \leq 100$ nmol/L	+ or - 15% > 100 nmol/L	Imprecision	Optimal
DHEA Sulphate	+ or - $1.2 \leq 10.0$ μ mol/L	+ or - 12% > 10.0 μ mol/L	Total Error	Desirable
Ferritin	+ or - $4.0 \leq 27.0$ μ g/L	+ or - 15% > 27.0 μ g/L	Imprecision	Desirable
Folate	+ or - $1.5 \leq 6.0$ nmol/L	+ or - 25% > 6.0 nmol/L	Imprecision	Desirable
FSH	+ or - $1.0 \leq 10.0$ IU/L	+ or - 10% > 10.0 IU/L	Imprecision	Desirable
Growth Hormone	+ or - $1 \leq 7$ mU/L	+ or - 15% > 7 mU/L	Imprecision	Optimal
hCG	+ or - $1 \leq 10$ IU/L	+ or - 10% > 10 IU/L	Prof. Opinion	

continued



Endocrine (cont.)

Analyte	Lower Limit	Upper Limit	Basis	Level
Homocysteine	+ or - 1.5 ≤ 15.0 μmol/L	+ or - 10% > 15.0 μmol/L	Total Error	Optimal
17-Hydroxyprogesterone	+ or - 2.0 ≤ 10.0 nmol/L	+ or - 20% > 10.0 nmol/L	Total Error	Optimal
Insulin	+ or - 0.6 ≤ 5.0 mU/L	+ or - 12% > 5.0 mU/L	Imprecision	Optimal
LH	+ or - 1.5 ≤ 10.0 IU/L	+ or - 15% > 10.0 IU/L	Imprecision	Desirable
Oestradiol	+ or - 25 ≤ 100 pmol/LI	+ or - 25% > 100 pmol/L	Total Error	Desirable
Oestriol(Unconjugated)	+ or - 0.9 ≤ 6.0 nmol/L	+ or - 15% > 6.0 nmol/L	Prof. Opinion	
PTH	+ or - 1.0 ≤ 8.0 pmol/L	+ or - 12% > 8.0 pmol/L	Imprecision	Optimal
Progesterone	+ or - 2 ≤ 10 nmol/L	+ or - 15% > 10 nmol/L	Imprecision	Optimal
Prolactin	+ or - 40 ≤ 400 mIU/L	+ or - 10% > 400 mIU/L	Imprecision	Minimal
SHBG	+ or - 6 ≤ 50 nmol/L	+ or - 12% > 50 nmol/L	Imprecision	Desirable
Testosterone	+ or - 0.4 ≤ 2.7 nmol/L	+ or - 15% > 2.7 nmol/L	Imprecision	Minimal
TSH	+ or - 0.10 ≤ 0.50 mU/L	+ or - 20% > 0.50 mU/L	Imprecision	Desirable
Free T3	+ or - 0.7 ≤ 3.5 pmol/L	+ or - 20% > 3.5 pmol/L	Total Error	Desirable
Free T4	+ or - 1.5 ≤ 12 pmol/L	+ or - 12% > 12 pmol/L	Total Error	Desirable
Total T3	+ or - 0.2 ≤ 1.3 nmol/L	+ or - 15% > 1.3 nmol/L	Total Error	Desirable
Total Thyroxine	+ or - 12 ≤ 120 nmol/L	+ or - 10% > 120 nmol/L	Total Error	Desirable
Vitamin B12	+ or - 18 ≤ 120 pmol/L	+ or - 15% > 120 pmol/L	Imprecision	Desirable
Vitamin D3	+ or - 9 ≤ 60 nmol/L	+ or - 15 % 60 nmol/L	Imprecision	Minimal
Total PSA	+ or - 0.4 ≤ 5.0 μg/L	+ or - 8% > 5.0 μg/L	Imprecision	Optimal
Free PSA	+ or - 0.2 ≤ 1.4 μg/L	+ or - 15% > 1.4 μg/L	Imprecision	Optimal
ACE	+ or - 1.0 ≤ 10.0 U/L	+ or - 10% > 10.0 U/L	Prof. Opinion	
Red Cell Folate	+ or - 80 ≤ 400 nmol/L	+ or - 20% > 400 nmol/L	Imprecision	Minimal

Faecal Occult Blood

Analyte	Lower Limit	Upper Limit	Basis	Level
Quantitative	+ or - 15 ≤ 100 ng/mL	+ or - 15% > 100 ng/mL		

General Serum Chemistry / Condensed Serum Chemistry

Analyte	Lower Limit	Upper Limit	Basis	Level
Albumin	+ or - 2.0 ≤ 33.0 g/L	+ or - 6% > 33.0 g/L	Total Error	Desirable
Alkaline Phosphatase	+ or - 15 ≤ 125 U/L	+ or - 12% > 125 U/L	Total Error	Desirable
ALT	+ or - 5 ≤ 40 U/L	+ or - 12% > 40 U/L	Imprecision	Optimal
Amylase	+ or - 10 ≤ 100 U/L	+ or - 10% > 100 U/L	Imprecision	Desirable
AST	+ or - 5 ≤ 40 U/L	+ or - 12% > 40 U/L	Imprecision	Desirable
Bicarbonate	+ or - 2.0 ≤ 20.0 mmol/L	+ or - 10% > 20.0 mmol/L	Total Error	Minimal
Bilirubin-Total	+ or - 3 ≤ 25 µmol/L	+ or - 12% > 25 µmol/L	Imprecision	Optimal
Bilirubin Conjugated	+ or - 3 ≤ 15 µmol/L	+ or - 20% > 15 µmol/L	Imprecision	Optimal
Calcium	+ or - 0.10 ≤ 2.50 mmol/L	+ or - 4% > 2.50 mmol/L	Imprecision	Minimal
Chloride	+ or - 3 ≤ 100 mmol/L	+ or - 3% > 100 mmol/L	Total Error	minimal
Cholesterol	+ or - 0.30 ≤ 5.00 mmol/L	+ or - 6% > 5.00 mmol/L	Imprecision	Desirable
Cholinesterase	+ or - 500 ≤ 5000 U/L	+ or - 10% > 5000 U/L	Prof. Opinion	
Creatine Kinase	+ or - 15 ≤ 125 U/L	+ or - 12% > 125 U/L	Imprecision	Optimal
CK-MB	+ or - 3 ≤ 15 U/L or µg/L	+ or - 20% > 15 U/L or µg/L	Imprecision	Desirable
Cortisol	+ or - 15 ≤ 100 nmol/L	+ or - 15% > 100 nmol/L	Prof. Opinion	
Creatinine	+ or - 8.0 ≤ 100.0 µmol/L	+ or - 8% > 100.0 µmol/L	Imprecision	Minimal
Ferritin	+ or - 4.0 ≤ 27 µg/L	+ or - 15% > 27 µg/L	Imprecision	Desirable
Fructosamine	+ or - 15 ≤ 250 µmol/L	+ or - 6% > 250 µmol/L	Imprecision	Minimal
Glucose	+ or - 0.4 ≤ 5.0 mmol/L	+ or - 8% > 5.0 mmol/L	Imprecision	Desirable
GGT	+ or - 5 ≤ 40 U/L	+ or - 12% > 40 U/L	Imprecision	Desirable
hCG-quantitative	+ or - 1.0 ≤ 10.0 IU/L	+ or - 10% > 10.0 IU/L	Prof. Opinion	
HDL Cholesterol	+ or - 0.10 ≤ 0.80 mmol/L	+ or - 12% > 0.80 mmol/L	Imprecision	Minimal
Icterus (Quantitative)	+ or - 6.0 ≤ 25.0 µmol/L	+ or - 25% > 25.0 µmol/L		
Icterus (Numeric Index)	+ or - 1 ≤ 10	+ or - 10% > 10		
Iron	+ or - 3.0 ≤ 25.0 µmol/L	+ or - 12% > 25.0 µmol/L	Imprecision	Optimal
Lactate Dehydrogenase	+ or - 20 ≤ 250 U/L	+ or - 8% > 250 U/L	Prof. Opinion	
Lactate	+ or - 0.5 ≤ 4.0 mmol/L	+ or - 12% > 4.0 mmol/L	Imprecision	Optimal
Lipase	+ or - 12 ≤ 60 U/L	+ or - 20% > 60 U/L	Imprecision	Desirable

continued

General Serum Chemistry / Condensed Serum Chemistry (cont.)

Analyte	Lower Limit	Upper Limit	Basis	Level
Lithium	+ or - 0.20 ≤ 2.0 mmol/L	+ or - 10% > 2.0 mmol/L	Prof. Opinion	
Magnesium	+ or - 0.10 ≤ 1.25 mmol/L	+ or - 8% > 1.25 mmol/L	Total Error	Minimal
Osmolality	+ or - 8 ≤ 266 mmol/kg	+ or - 3% > 266 mmol/kg	Total Error	Minimal
Phosphate	+ or - 0.06 ≤ 0.75 mmol/L	+ or - 8% > 0.75 mmol/L	Imprecision	Desirable
Potassium	+ or - 0.2 ≤ 4.0 mmol/L	+ or - 5% > 4.0 mmol/L	Imprecision	Desirable
Protein (Total)	+ or - 3 ≤ 60 g/L	+ or - 5% > 60 g/L	Total Error	Desirable
Sodium	+ or - 3 ≤ 150 mmol/L	+ or - 2% > 150 mmol/L	Total Error	Minimal
Total T3	+ or - 0.2 ≤ 1.3 nmol/L	+ or - 15% > 1.3 nmol/L	Total Error	Desirable
Free T3	+ or - 0.7 ≤ 3.5 pmol/L	+ or - 20% > 3.5 pmol/L	Total Error	Desirable
Free T4	+ or - 1.5 ≤ 12.0 pmol/L	+ or - 12% > 12.0 pmol/L	Total Error	Desirable
TSH	+ or - 0.1 ≤ 0.5 mU/L	+ or - 20% > 0.5 mU/L	Imprecision	Desirable
Total T4	+ or - 12 ≤ 120 nmol/L	+ or - 10% > 120 nmol/L	Total Error	Desirable
TIBC	+ or - 4.0 ≤ 50.0 μmol/L	+ or - 8% > 50.0 μmol/L	Prof. Opinion	
Transferrin	+ or - 0.20 ≤ 2.50 g/L	+ or - 8% > 2.50 g/L	Total Error	Minimal
Triglyceride	+ or - 0.20 ≤ 1.60 mmol/L	+ or - 12% > 1.60 mmol/L	Imprecision	Optimal
Troponin I	+ or - 0.002 ≤ 0.010 μg/L	+ or - 20% > 0.010 μg/L	Prof. Opinion	
Troponin T	+ or - 0.01 ≤ 0.050 μg/L	+ or - 20% > 0.050 μg/L	Prof. Opinion	
Urate	+ or - 0.030 ≤ 0.380 mmol/L	+ or - 8% > 0.380 mmol/L	Imprecision	Desirable
Urea	+ or - 0.5 ≤ 4.0 mmol/L	+ or - 12% > 4.0 mmol/L	Imprecision	Desirable

General Therapeutic Drugs / Condensed Serum Chemistry

Analyte	Lower Limit	Upper Limit	Basis	Level
Carbamazepine	+ or - 0.5 ≤ 4.7 mg/L	+ or - 10% > 4.7 mg/L	Prof. Opinion	
Digoxin	+ or - 0.2 ≤ 1.6 µg/L	+ or - 10% > 1.6 µg/L	Prof. Opinion	
Gentamicin	+ or - 0.2 ≤ 2.0 mg/L	+ or - 10% > 2.0 mg/L	Prof. Opinion	
Paracetamol	+ or - 3.0 ≤ 30.0 mg/L	+ or - 10% > 30.0 mg/L	Prof. Opinion	
Phenobarbitone	+ or - 0.7 ≤ 7.0 mg/L	+ or - 10% > 7.0 mg/L	Prof. Opinion	
Phenytoin	+ or - 0.8 ≤ 7.6 mg/L	+ or - 10% > 7.6 mg/L	Prof. Opinion	
Salicylate	+ or - 14.0 ≤ 143.0 mg/L	+ or - 10% > 143.0 mg/L	Prof. Opinion	
Theophylline	+ or - 0.5 ≤ 5.4 mg/L	+ or - 10% > 5.4 mg/L	Prof. Opinion	
Valproate	+ or - 4.0 ≤ 36.0 mg/L	+ or - 10% > 36.0 mg/L	Prof. Opinion	
Vancomycin	+ or - 2.0 ≤ 20.3 mg/L	+ or - 10% > 20.3 mg/L	Prof. Opinion	

Glycohaemoglobin

Analyte	Lower Limit	Upper Limit	Basis	Level
HbA1c (NGSP) (%)	+ or - 0.4 ≤ 6.7%	+ or - 6% > 6.7%	Prof. Opinion	
HbA1c (IFCC) (mmol/mol)	+ or - 4 ≤ 45 mmol/mol	+ or - 8% > 45 mmol/mol	Prof. Opinion	

IGF-1 / C-Peptide

Analyte	Lower Limit	Upper Limit	Basis	Level
IGF-1	+ or - 3 ≤ 25 nmol/L	+ or - 12% > 25 nmol/L	Imprecision	Minimal
C Peptide	+ or - 0.15 ≤ 1.25 nmol/L	+ or - 12% > 1.25 nmol/L	Total Error	Optimal
IGFBP-3	+ or - 15.0 ≤ 100 nmol/L	+ or - 15% > 100 nmol/L	Prof. Opinion	

Immunosuppressants

Analyte	Lower Limit	Upper Limit	Basis	Level
Cyclosporin	+ or - 10 ≤ 100 µg/L	+ or - 10% > 100 µg/L	Prof. Opinion	
Sirolimus	+ or - 0.5 ≤ 5.0 µg/L	+ or - 10% > 5.0 µg/L	Prof. Opinion	
Tacrolimus	+ or - 0.5 ≤ 5.0 µg/L	+ or - 10% > 5.0 µg/L	Prof. Opinion	



Neonatal Bilirubin

Analyte	Lower Limit	Upper Limit	Basis	Level
Total Bilirubin	+ or - 8 ≤ 80 μmol/L	+ or - 10% > 80 μmol/L	Imprecision	Optimal
Conjugated Bilirubin	+ or - 3 ≤ 15 μmol/L	+ or - 20% > 15 μmol/L	Imprecision	Optimal

Plasma Metanephrines

Analyte	Lower Limit	Upper Limit	Basis	Level
Metanephrine	+ or - 75 ≤ 500 pmol/L	+ or - 15% > 500 pmol/L	Total Error	Optimal
Normetanephrine	+ or - 200 ≤ 1000 pmol/L	+ or - 20% > 1000 pmol/L	Total Error	Optimal
Methoxytyramine	+ or - 36 ≤ 120 pmol/L	+ or - 30% > 120 pmol/L	Total Error	Desirable

Point-of-care Troponin / Condensed Point-of-care Troponin

Analyte	Lower Limit	Upper Limit	Basis	Level
Troponin I	+ or - 0.01 ≤ 0.05 μg/L	+ or - 20% > 0.05 μg/L	Prof. Opinion	
Troponin T (Quantitative)	+ or - 10 ≤ 50 ng/L	+ or - 20% > 50 ng/L	Prof. Opinion	
hCG	+ or - 1 ≤ 10 IU/L	+ or - 10% > 10 IU/L	Prof. Opinion	

Point-of-care Blood Gases / Condensed Point-of-care Blood Gases

Analyte	Lower Limit	Upper Limit	Basis	Level
pH	+ or - 0.04	+ or - 0.04	Prof. Opinion	
pCO ₂	+ or - 2.0 ≤ 34.0 mm Hg	+ or - 6% > 34.0 mm Hg	Total Error	Desirable
pO ₂	+ or - 2.0 ≤ 34.0 mm Hg	+ or - 6% > 34.0 mm Hg	CO ₂ CVi & CVg	Desirable
TCO ₂	+ or - 2.0 ≤ 20.0 mmol/L	+ or - 10% > 20.0 mmol/L	Prof. Opinion	
Lactate	+ or - 0.5 ≤ 4.0 mmol/L	+ or - 12% > 4.0 mmol/L	Imprecision	Optimal
Sodium	+ or - 3 ≤ 150 mmol/L	+ or - 2% > 150 mmol/L	Total Error	Minimal
Potassium	+ or - 0.2 ≤ 4.0 mmol/L	+ or - 5% > 4.0 mmol/L	Imprecision	Desirable
Chloride	+ or - 3 ≤ 100 mmol/L	+ or - 3% > 100 μmol/L	Total Error	Minimal
Ionised Calcium	+ or - 0.04 ≤ 1.00 mmol/L	+ or - 4% > 1.00 mmol/L	Total Error	Minimal
Glucose	+ or - 0.4 ≤ 5.0 mmol/L	+ or - 8% > 5.0 mmol/L	Imprecision	Desirable
Urea	+ or - 0.5 ≤ 4.0 mmol/L	+ or - 12% > 4.0 mmol/L	Imprecision	Desirable

continued

Point-of-care Blood Gases / Condensed Point-of-care Blood Gases (cont.)

Analyte	Lower Limit	Upper Limit	Basis	Level
Creatinine	+ or - $8.0 \leq 100.0 \mu\text{mol/L}$	+ or - $8\% > 100.0 \mu\text{mol/L}$	Imprecision	Minimal
Haematocrit	+ or - $4 \leq 20\%$	+ or - $20\% > 20\%$	Prof. Opinion	
Haemoglobin	+ or - $5 \leq 100 \text{ g/L}$	+ or - $5\% > 100 \text{ g/L}$	Prof. Opinion	

Porphyrins

Analyte	Lower Limit	Upper Limit	Basis	Level
Urine ALA	+ or - $8 \leq 32 \mu\text{mol/L}$	+ or - $25\% > 32 \mu\text{mol/L}$	Prof. Opinion	
Urine Porphobilinogen (Quantitative)	+ or - $5 \leq 20 \mu\text{mol/L}$	+ or - $25\% > 20 \mu\text{mol/L}$	Prof. Opinion	Desirable
Urine Total Porphyrin	+ or - $60 \leq 300 \text{ nmol/L}$	+ or - $20\% > 300 \text{ nmol/L}$	Prof. Opinion	Desirable
Faecal Percent Dry Weight	+ or - $2 \leq 20\%$	+ or - $10\% > 20\%$	Prof. Opinion	
Faecal Total Porphyrin	+ or - $40 \leq 200 \mu\text{mol/kg}$	+ or - $20\% > 200 \mu\text{mol/kg}$	Prof. Opinion	Optimal
Plasma Total Porphyrin	+ or - $4 \leq 20 \text{ nmol/L}$	+ or - $20\% > 20 \text{ nmol/L}$	Prof. Opinion	Minimal
RBC Total Porphyrin	+ or - $0.4 \leq 2.0 \mu\text{mol/Lrc}$	+ or - $20\% > 2.0 \mu\text{mol/Lrc}$	Prof. Opinion	

Serum Indices

Analyte	Lower Limit	Upper Limit	Basis	Level
Haemolysis (Quantitative)	+ or - $8 \leq 80 \text{ mg/dL}$	+ or - $10\% > 80 \text{ mg/dL}$		
Haemolysis (Numeric Index)	+ or - $1 \leq 10$	+ or - $10\% > 10$		
Icterus (Quantitative)	+ or - $6.0 \leq 25.0 \mu\text{mol/L}$	+ or - $25\% > 25.0 \mu\text{mol/L}$		
Icterus (Numeric Index)	+ or - $1 \leq 10$	+ or - $10\% > 10$		
Lipaemia (Quantitative)	+ or - $26 \leq 263 \text{ mg/dL}$	+ or - $10\% > 263 \text{ mg/dL}$		
Lipaemia (Numeric Index)	+ or - $1 \leq 10$	+ or - $10\% > 10$		

Special Lipids

Analyte	Lower Limit	Upper Limit	Basis	Level
Cholesterol	+ or - 0.30 ≤ 5.00 mmol/L	+ or - 6% > 5.00 mmol/L	Prof. Opinion	
HDL Cholesterol	+ or - 0.1 ≤ 0.80 mmol/L	+ or - 12% > 0.80 mmol/L	Prof. Opinion	
LDL Cholesterol	+ or - 0.20 ≤ 2.00 mmol/L	+ or - 10% > 2.00 mmol/L	Prof. Opinion	
Triglyceride	+ or - 0.20 ≤ 1.60 mmol/L	+ or - 12% > 1.60 mmol/L	Prof. Opinion	
Apolipoprotein A1	+ or - 0.2 ≤ 2.0 g/L	+ or - 10% > 2.0 g/L	Prof. Opinion	
Apolipoprotein B	+ or - 0.2 ≤ 2.0 g/L	+ or - 10% > 2.0 g/L	Prof. Opinion	
Lipoprotein(a)	+ or - 0.06 ≤ 0.3 g/L	+ or - 20% > 0.3 g/L	Imprecision	Desirable

Special Therapeutic Drugs

Analyte	Lower Limit	Upper Limit	Basis	Level
Amiodarone	+ or - 0.1 ≤ 1.3 mg/L	+ or - 10% > 1.3 mg/L	Prof. Opinion	
Amitriptyline	+ or - 3.0 ≤ 28.0 µg/L	+ or - 10% > 28.0 µg/L	Prof. Opinion	
Clozapine	+ or - 12 ≤ 100 µg/L	+ or - 12% > 100 µg/L	Prof. Opinion	
Methotrexate	+ or - 0.10 ≤ 1.00 µmol/L	+ or - 10% > 1.00 µmol/L	Prof. Opinion	
Mycophenolate	+ or - 0.10 ≤ 1.00 mg/L	+ or - 10% > 1.00 mg/L	Prof. Opinion	
Nortriptyline	+ or - 3.0 ≤ 26.0 µg/L	+ or - 10% > 26.0 µg/L	Prof. Opinion	

Sweat Electrolytes

Analyte	Lower Limit	Upper Limit	Basis	Level
Chloride	+ or - 2 ≤ 40 mmol/L	+ or - 5% > 40 mmol/L	Imprecision	
Sweat Conductivity	+ or - 2 ≤ 50 mmol/L	+ or - 5% > 50 mmol/L	UK Guidelines	

Trace Elements

Serum				
Analyte	Lower Limit	Upper Limit	Basis	Level
Aluminium	+ or - 0.08 ≤ 0.40 μmol/L	+ or - 20% > 0.40 μmol/L	Prof. Opinion	
Chromium	+ or - 3 ≤ 25 nmol/L	+ or - 12% > 25 nmol/L	Prof. Opinion	
Cobalt	+ or - 1 ≤ 10 nmol/L	+ or - 10% > 10 nmol/L	Prof. Opinion	
Copper	+ or - 1.6 ≤ 20.0 μmol/L	+ or - 8% > 20.0 μmol/L	Imprecision	Minimal
Lithium	+ or - 0.2 ≤ 2.0 mmol/L	+ or - 10% > 2.0 mmol/L	Prof. Opinion	
Magnesium	+ or - 0.1 ≤ 1.25 nmol/L	+ or - 8% > 1.25 nmol/L	Prof. Opinion	
Selenium	+ or - 0.18 ≤ 1.50 μmol/L	+ or - 12% > 1.50 μmol/L	Imprecision	Desirable
Thallium	+ or - 1 ≤ 10 nmol/L	+ or - 10% > 10 nmol/L	Prof. Opinion	
Vanadium	+ or - 1 ≤ 10 nmol/L	+ or - 10% > 10 nmol/L	Prof. Opinion	
Zinc	+ or - 2.0 ≤ 20.0 μmol/L	+ or - 10% > 20.0 μmol/L	Imprecision	Desirable
Urine				
Analyte	Lower Limit	Upper Limit	Basis	Level
Arsenic (Total)	+ or - 50 ≤ 500 nmol/L	+ or - 10% > 500 nmol/L	Prof. Opinion	
Cadmium	+ or - 3 ≤ 20 nmol/L	+ or - 15% > 20 nmol/L	Prof. Opinion	
Chromium	+ or - 3 ≤ 25 nmol/L	+ or - 12% > 25 nmol/L	Prof. Opinion	
Cobalt	+ or - 2 ≤ 20 nmol/L	+ or - 10% > 20 nmol/L	Prof. Opinion	
Copper	+ or - 0.05 ≤ 0.50 μmol/L	+ or - 10% > 0.50 μmol/L	Prof. Opinion	
Iodine	+ or - 80 ≤ 800 nmol/L	+ or - 10% > 800 nmol/L	Prof. Opinion	
Iron	+ or - 3 ≤ 25 μmol/L	+ or - 12% > 25 μmol/L	Prof. Opinion	
Lead	+ or - 50 ≤ 500 nmol/L	+ or - 10% > 500 nmol/L	Prof. Opinion	
Magnesium	+ or - 0.10 ≤ 1.25 mmol/L	+ or - 8% > 1.25 mmol/L	Prof. Opinion	
Manganese	+ or - 3 ≤ 25 nmol/L	+ or - 12% > 25 nmol/L	Prof. Opinion	
Mercury	+ or - 9 ≤ 60 nmol/L	+ or - 15% > 60 nmol/L	Prof. Opinion	
Nickel	+ or - 40 ≤ 400 nmol/L	+ or - 10% > 400 nmol/L	Prof. Opinion	
Selenium	+ or - 0.06 ≤ 0.50 μmol/L	+ or - 12% > 0.50 μmol/L	Prof. Opinion	
Thallium	+ or - 1 ≤ 10 nmol/L	+ or - 10% > 10 nmol/L	Prof. Opinion	
Vanadium	+ or - 2 ≤ 10 nmol/L	+ or - 10% > 10 nmol/L	Prof. Opinion	
Zinc	+ or - 2.0 ≤ 20.0 μmol/L	+ or - 10% > 20.0 μmol/L	Prof. Opinion	

continued

Trace Elements (cont.)

Whole Blood

Analyte	Lower Limit	Upper Limit	Basis	Level
Arsenic (Total)	+ or - 10 ≤ 100 nmol/L	+ or - 10% > 100 nmol/L	Prof. Opinion	
Cadmium	+ or - 3 ≤ 20 nmol/L	+ or - 15% > 20 nmol/L	Prof. Opinion	
Cobalt	+ or - 2 ≤ 10 nmol/L	+ or - 10% > 10 nmol/L	Prof. Opinion	
Chromium	+ or - 3 ≤ 25 nmol/L	+ or - 12% > 25 nmol/L	Prof. Opinion	
Lead	+ or - 0.05 ≤ 0.50 µmol/L	+ or - 10% > 0.50 µmol/L	Optimal	Imprecision
Magnesium	+ or - 0.10 ≤ 1.25 mmol/L	+ or - 8% > 1.25 mmol/L	Prof. Opinion	
Manganese	+ or - 30 ≤ 250 nmol/L	+ or - 12% > 250 nmol/L	Prof. Opinion	
Mercury	+ or - 9 ≤ 60 nmol/L	+ or - 15% > 60 nmol/L	Prof. Opinion	
Selenium	+ or - 0.30 ≤ 2.50 µmol/L	+ or - 12% > 2.50 µmol/L	Desirable	Imprecision
Thallium	+ or - 2 ≤ 10 nmol/L	+ or - 10% > 10 nmol/L	Prof. Opinion	
Zinc	+ or - 6 ≤ 60 µmol/L	+ or - 10% > 60 µmol/L	Desirable	Imprecision

Tumour Markers

Analyte	Lower Limit	Upper Limit	Basis	Level
ACTH	+ or - 2.0 ≤ 20 pmol/L	+ or - 10% > 20 pmol/L	Prof. Opinion	
Alpha-fetoprotein	+ or - 2 ≤ 17 kIU/L	+ or - 12% > 17 kIU/L	Imprecision	Desirable
Calcitonin	+ or - 2 ≤ 20 ng/L	+ or - 10% > 20 ng/L	Prof. Opinion	
CEA	+ or - 0.6 ≤ 5.0 µg/L	+ or - 12% > 5.0 µg/L	Imprecision	Desirable
CA125	+ or - 6 ≤ 50 kU/L	+ or - 12% > 50 kU/L	Imprecision	Optimal
CA15-3	+ or - 3 ≤ 30 kU/L	+ or - 10% > 30 kU/L	Imprecision	Minimal
CA19-9	+ or - 6 ≤ 40 kU/L	+ or - 15% > 40 kU/L	Imprecision	Desirable
hCG	+ or - 1 ≤ 10 IU/L	+ or - 10% > 10 IU/L	Prof. Opinion	
Beta-2-Microglobulin	+ or - 0.2 ≤ 2.0 mg/L	+ or - 10% > 2.0 mg/L	Imprecision	Minimal
NSE	+ or - 2.0 ≤ 20 µg/L	+ or - 10% > 20 µg/L	Prof. Opinion	
Gastrin	+ or - 10 ≤ 100 pmol/L	+ or - 10% > 100 pmol/L	Prof. Opinion	
Prolactin	+ or - 40 ≤ 400 mIU/L	+ or - 10% > 400 mIU/L	Imprecision	Minimal
Total PSA	+ or - 0.4 ≤ 5.0 µg/L	+ or - 8% > 5.0 µg/L	Imprecision	Optimal
Thyroglobulin	+ or - 0.2 ≤ 1.7 µg/L	+ or - 12% > 1.7 µg/L	Imprecision	Desirable

Urine Chemistry

Analyte	Lower Limit	Upper Limit	Basis	Level
Albumin	+ or - 4.0 ≤ 20.0 mg/L	+ or - 20% > 20.0 mg/L	Prof. Opinion	
Calcium	+ or - 0.20 ≤ 2.0 mmol/L	+ or - 10% > 2.0 mmol/L	Prof. Opinion	
Chloride	+ or - 4 ≤ 40 mmol/L	+ or - 10% > 40 mmol/L	Prof. Opinion	
Cortisol	+ or - 30 ≤ 200 nmol/L	+ or - 15% > 200 nmol/L	Prof. Opinion	Desirable
Creatinine	+ or - 0.5 ≤ 5.0 mmol/L	+ or - 10% > 5.0 mmol/L	Prof. Opinion	
DPD (Free)	+ or - 15 ≤ 80 nmol/L	+ or - 15% > 80 nmol/L	Prof. Opinion	
Free 3-Methoxytyramine	+ or - 15 ≤ 100 nmol/L	+ or - 15% > 100 nmol/L		
Free Metanephrine	+ or - 30 ≤ 100 nmol/L	+ or - 30% > 100 nmol/L		
Free Normetanephrine	+ or - 40 ≤ 200 nmol/L	+ or - 20% > 200 nmol/L		
Glucose	+ or - 1.0 ≤ 10.0 mmol/L	+ or - 10% > 10.0 mmol/L	Prof. Opinion	
hCG-quantitative	+ or - 5 ≤ 50 IU/L	+ or - 10% > 50 IU/L	Prof. Opinion	
Magnesium	+ or - 0.3 ≤ 2.0 mmol/L	+ or - 15% > 2.0 mmol/L	Prof. Opinion	
Total PSA	+ or - 0.4 ≤ 5.0 ag/L	+ or - 8% > 5.0 ag/L	Imprecision	Optimal
N-Telopeptides	+ or - 80 ≤ 700 nmolBCE/L	+ or - 10% > 700 nmolBCE/L	Prof. Opinion	
Osmolality	+ or - 6 ≤ 300 mmol/kg	+ or - 2% > 300 mmol/kg	Prof. Opinion	
Potassium	+ or - 2 ≤ 20 mmol/L	+ or - 10% > 20 mmol/L	Prof. Opinion	
Phosphate	+ or - 3 ≤ 20 mmol/L	+ or - 15% > 20 mmol/L	Prof. Opinion	
Sodium	+ or - 4 ≤ 40 mmol/L	+ or - 10% > 40 mmol/L	Prof. Opinion	
Total Protein	+ or - 0.10 ≤ 1.00 g/L	+ or - 10% > 1.00 g/L	Prof. Opinion	
Urate	+ or - 0.3 ≤ 2 mmol/L	+ or - 15% > 2 mmol/L	Prof. Opinion	
Urea	+ or - 20 ≤ 200 mmol/L	+ or - 10% > 200 mmol/L	Prof. Opinion	
ACR	+ or - 0.5 ≤ 3.5 mg/mmol	+ or - 15% > 3.5 mg/mmol	Prof. Opinion	

Vitamins				
Analyte	Lower Limit	Upper Limit	Basis	Level
Vitamin A	+ or - $0.2 \leq 1.7 \mu\text{mol/L}$	+ or - $12\% > 1.7 \mu\text{mol/L}$	Imprecision	Desirable
Vitamin E	+ or - $3 \leq 25 \mu\text{mol/L}$	+ or - $12\% > 25 \mu\text{mol/L}$	Imprecision	Desirable
β Carotene	+ or - $0.4 \leq 2.0 \mu\text{mol/L}$	+ or - $25\% > 2.0 \mu\text{mol/L}$	Total Error	Optimal
Total Carotenoids	+ or - $0.8 \leq 4.0 \mu\text{mol/L}$	+ or - $25\% > 4.0 \mu\text{mol/L}$	Total Error	Optimal
Vitamin B6 - Plasma (Pyridoxal Phosphate)	+ or - $9 \leq 60 \text{ nmol/L}$	+ or - $15\% > 60 \text{ nmol/L}$	Total Error	Optimal
Vitamin B6 - Whole Blood (Pyridoxal Phosphate)	+ or - $9 \leq 60 \text{ nmol/L}$	+ or - $15\% > 60 \text{ nmol/L}$	Total Error	Optimal
Vitamin B1 (Thiamine Pyrophosphate)	+ or - $9 \leq 60 \text{ nmol/L}$	+ or - $15\% > 60 \text{ nmol/L}$	Total Error	Optimal
Vitamin B2	+ or - $25 \leq 250 \text{ nmol/L}$	+ or - $10\% > 250 \text{ nmol/L}$		
Vitamin C	+ or - $7 \leq 35 \mu\text{mol/L}$	+ or - $20\% > 35 \mu\text{mol/L}$	Imprecision	Desirable