DTH Meditech HCIS Reference Intervals

Applicability This document applies to all Central Zone DTH Meditech HCIS personnel of AHS Laboratory Services and laboratories administered under the Covenant Health Group collectively referred to here as Laboratory Services.

Purpose This document states the reference intervals for Central Zone DTH Meditech HCIS Laboratory analytes.

Test	Reference Intervals
ACETAMINOPHEN, P/S	MALE AND FEMALE µmol/L 0 – 150 yr Therapeutic 70 – 130
ALBUMIN/CREATININE RATIO, U	MALE AND FEMALE mg/mmol <1 mo <17.50 1 mo – 1 yr <4.00 2 – 150 yr <3.00
ALBUMIN, P/S	MALE, FEMALE, UNKNOWN g/L 0 – 364 d 22 – 45 365 d – 150 yr 30 – 45
ALBUMIN, TIMED, 24 Hour Urine	Urine Albumin Excretion Rate MALE AND FEMALE ug/min 0 – 150 yr <20
ALKALINE PHOSPHATASE (ALP), P/S	M+F+U 0 – 14 d 70 - 320 U/L 15 d – 364 d 130 - 500 1 y – 12 y 130 – 430 18 y – 150 y 40 - 120 M+U 13 y – 14 y 130 - 500 15 y – 17 y 60 - 250 F 13 y – 14 y 60 - 225 15 y – 17 y 50 - 140
ALANINE AMINOTRANSFERASE (ALT), P/S	M,F, U 0- <18 yrs <35 U/L M ≥ 18 yrs <60 U/L F ≥ 18 yrs <40 U/L
AMMONIA, P	MALE AND FEMALE µmol/L 0 – <1 mo 55 – 90 1 mo – 14 yr 25 – 55 15 – 150 yr 15 – 40
AMYLASE, 24 Hour Urine	MALE AND FEMALE U/d 0 – 150 yr < 450
AMYLASE, U	MALE AND FEMALE U/L 0 – 150 yr < 135
AMYLASE, P/S	MALE AND FEMALE U/L 0 – <1 mo < 25 1 mo – 11 mo 5 – 60 1 – 150 yr 8 – 105

Test	Reference Intervals
ANTISTREPTOLYSIN O, P/S	MALE AND FEMALE kU/L 0 – 150 yr <200
ASPARTATE AMINOTRANSFERASE (AST), P/S	MALE AND FEMALE U/L 0 – 1 yr 25 – 75 2 – 9 yr 15 – 50 10 – 17 yr 10 – 45 18 – 150 yr 7 – 40
BETA HUMAN CHORIONIC GONADOTROPIN (BCHG), U	Negative
BETA HUMAN CHORIONIC GONADOTROPIN (BHCG), P/S	MALE AND FEMALE IU/L 0 – 150 yr < 5
BETA-HYDROXYBUTYRATE, B	MALE AND FEMALE mmol/L 0 - 150 yr 0.0 - 0.3
BILIRUBIN – DIRECT, P/S	MALE, FEMALE and UNKNOWN µmol/L 0 – 150 yr < 5
BILIRUBIN – TOTAL, P/S	MALE, FEMALE and UNKNOWN µmol/L 0 – 28 d no range 29 d – 150 yr < 20
BLOOD GASES	Refer to tables on the last page of this document
BNP (B-TYPE NATRIURETIC PEPTIDE), P	MALE AND FEMALE ng/L 0 – 150 yr Diagnostic Criteria: <100 CHF Unlikely 100 – 500 CHF Possible >500 CHF Likely
CALCIUM, 24 Hour Urine	MALE AND FEMALE mmol/d 0 – 150 yr < 7.50 (intake dependent)
CALCIUM, P/S	Vista, EXL and Expand MALE, FEMALE and UNKNOWN mmol/L 0 – 10 d 1.80 – 2.70 11 – 365 d 2.20 – 2.70 > 1yr 2.05 – 2.45
CALCIUM IONIZED, POST FILTER	MALE AND FEMALE mmol/L 0 – 150 yr 0.25 – 0.45
CALCIUM, IONIZED, S	MALE AND FEMALE mmol/L 0 – 150 yr 1.10 – 1.35
CARBAMAZEPINE, P/S	MALE AND FEMALE µmol/L Therapeutic Range 0 – 150 yr 20 – 50
CBC (COMPLETE BLOOD COUNT), B	See "DTH Meditech HCIS CBC and Differential Reference Intervals"

Test	Reference Intervals
CELL COUNT, CSF	Color Colorless Appearance Clear WBC 0 – 5 x10^6/L RBC 0 x 10^6/L
CELL COUNT, Fluid	Transudates Color Colorless Clarity Clear RBC < 10,000 x 10^6/L WBC < 1,000 x 10^6/L Exudates Color Variable Clarity Turbid RBC > 10,000 x 10^6/L WBC > 1,000 x 10^6/L
CHLAMYDIA/GONORRHOEAE PROBE NUCLEIC ACID AMPLIFICATION TEST (NAAT)	Negative
CHOLESTEROL, TOTAL, P/S	MALE AND FEMALE: mmol/L <=1 yr 2.36 – 5.32 >1 – 17 yr 2.70 – 5.89 The following comment will be attached to the result: Acceptable limit relative to dyslipidemia and atherosclerosis risk is < 4.40 mmol/L 18 – 150 yr No reference range The following comment will be attached to the result: Desirable < 5.17 mmol/L High >= 6.21 mmol/L
CLOSTRIDIUM DIFFICILE	Negative
CO-OXIMETRY	Refer to tables on the last page of this document
CREATINE KINASE (CK), P/S	MALE AND FEMALE U/L 0 – <1 mo < 420 1 – 2 mo < 280 MALE 3 mo – 17 yr < 250 18 – 150 yr < 165 FEMALE 3 mo – 17 yr < 210 18 – 150 yr < 140
C-REACTIVE PROTEIN (CRP), P/S	MALE AND FEMALE mg/L 0 – 150 yr 0 – 10

Test	Reference Intervals
CREATININE, 24 Hour Urine	MALE mmol/d 18 – 150 yr 7.0 – 20.0 FEMALE 18 – 150 yr 5.0 – 16.0
CREATININE, P/S	MALE, FEMALE, Unknown umol/L 0 – 1 yr 10 – 40 2 – 5 yr 20 – 45 6 – 12 yr 20 – 75 13 – 14 yr 30 – 95 MALE/Unknown 15 – 150 yr 50 – 120 FEMALE 15 – 150 yr 40 – 100
CREATININE CLEARANCE, 24 Hour Urine + P/S	MALE AND FEMALE mL/s 0 – 1 yr 0.80 - 1.50 MALE 2 – 59 yr 1.40 – 2.10 60 – 150 yr 1.10 – 1.80 FEMALE 2 – 59 yr 1.20 – 2.00 60 – 150 yr 0.90 – 1.70
CRYOGLOBULIN, S	Negative
D-Dimer, Quantitative, P	0.00 - 0.50 mg/L FEU A D-Dimer BELOW the 0.50 mg/L FEU cutoff may be used with a standardized Clinical Assessment and/or imaging studies to help exclude venous thromboembolism (VTE). Values above the cutoff are not diagnostically useful in VTE assessment.
D-DIMER QUANTITATIVE (Triage Meter), B	0.5 mg/L A D-Dimer level BELOW the 0.5 mg/L cutoff may be used with the standardized clinical assessment and/or imaging studies to help exclude venous thromboembolism (VTE). Values above the cutoff are not diagnostically useful in VTE assessment.
DIFFERENTIAL, B	See "DTH Meditech HCIS CBC and Differential Reference Intervals".
DIGOXIN, P/S	MALE AND FEMALE nmol/L 0 – 150 yr

Test	Reference Intervals
	Suggested Ranges: Heart failure 0.6 – 1.2 Atrial Fibrillation Not Defined Caution: Results > 1.5 nmol/L are associated with a higher risk of toxicity in heart failure patients.
DNA DOUBLE STRAND ANTIBODY, S	Negative
eGFR (CKD-EPI)	MALE AND FEMALE 18 -150 y >59 mL/min/1.73m2 The following Interpretive Comment will be appended to all eGFR results on adults (≥18 years) with eGFR results <60 mL/min/1.73 m^2. "eGFR <60 mL/min/1.73 m^2 or urine Albumin/creatinine ratio ≥3.00 mg/mmol for more than 3 months suggests chronic kidney disease. For information on diagnosis, management and referral see www.diagnoseckd.ca." The following Interpretive Comment will be appended to all eGFR results on adults (≥18 years) “Reduced muscle mass will lead to overestimation, and increased muscle mass underestimation of eGFR.” eGFR results will not be reported on patients <18 years of age or dialysis patients. The following comment will be added to all eGFR results on patients of unknown gender. “Unable to calculate as the gender is unknown.”
ELECTROLYTES, P/S	MALE, FEMALE, UNKNOWN mmol/L Sodium 0 – 150 yr 135 – 145 Potassium 0 – 28 d 3.5 – 6.0 29 – 364 d 3.5 – 5.5 1 – 150 yr 3.5 – 5.0 NOTE: Potassium concentration is 0.2 to 0.5 mmol/L higher in serum (gold top).

Test	Reference Intervals
	Chloride 0 – 150 yr 98 – 112 CO2 0 – 150 yr 20 – 32
ELECTROLYTES, 24 Hour Urine	MALE AND FEMALE mmol/d Intake dependent Sodium 0 – <1 mo 10 – 50 1 mo – 150 yr 40 – 220 Potassium 0 – 150 yr 25 – 120 Chloride 0 – 11 mo 2 – 10 1 – 11 yr 15 – 40 12 – 150 yr 110 – 250
ESR (ERYTHROCYTE SEDIMENTATION RATE), B	0 – 17 yr 0 – 10 mm/h FEMALE 18 – 150 yr 0 – 20 mm/h MALE 18 – 150 yr 0 – 15 mm/h
ETHANOL, P/S	MALE AND FEMALE mmol/L 0 – 150 yr 0.0 Legal Limit 17.4
FERRITIN, P/S	MALE, FEMALE UNKNOWN µg/L 0 – <6 mo 50-500 6mo – 15 yrs 15 – 100 FEMALE >15 yrs 20-300 MALE, UNKNOWN >15 yr 30 – 500
FIBRINOGEN, QUANTITATIVE, P	1.62 – 4.24 g/L
FOLATE, P/S	MALE AND FEMALE nmol/L 0 – 150 yr 9.0 – 40.0
FSH (FOLLICLE STIMULATING HORMONE), P/S	MALE U/L 0 – 150 yr 0.7 – 10.8

Test	Reference Intervals
	FEMALE 0 – 9 yr < 6.0 10 – 150 yr Follicular: 2.3 – 2.6 U/L Midcycle: 5.2 – 17.5 U/L Luteal: 1.7 – 12.9 U/L Post-Menopausal: On Menopausal Hormone Therapy (MHT) 5.9 – 72.8 Not on MHT 12.7 – 132.2 U/L
GAMMA-GLUTAMYL TRANSFERASE (GGT), P/S	MALE, FEMALE, UNKNOWN U/L 0 – <15 d 20 – 200 15 d – 1 yr <100 1yr - <18 yrs <27 MALE 18 – 150 yr <80 FEMALE 18 – 150 yr <50
GENTAMICIN – INTERVAL, P/S	No range.
GENTAMICIN – PEAK, P/S	MALE AND FEMALE mg/L Therapeutic Range 0 – 150 yr 4.0 – 12.0
GENTAMICIN – RANDOM, P/S	No range.
GENTAMICIN – TROUGH, P/S	MALE AND FEMALE mg/L Therapeutic Range 0 – 150 yr < 2.0
GLUCOSE, CSF	MALE AND FEMALE mmol/L 0 - 150 yr 2.2 - 3.9
GLUCOSE – FASTING, P/S	MALE AND FEMALE mmol/L < 30 d 2.5 – 5.5 30 d – 150 yr 3.3 – 6.0
GLUCOSE – RANDOM, P/S	MALE AND FEMALE mmol/L 0 – 29 d 2.5 – 11.0 30 d – 150 yr 3.3 – 11.0
GLUCOSE – GESTATIONAL DIABETIC SCREEN, P/S	Gestational Diabetic Screen Interpretive Guidelines (Canadian Diabetes Guidelines 2013): Normal: < 7.8 mmol/L Follow-up with GTT-2h Pregnant: 7.8-11.0 mmol/L Gestational Diabetes: >= 11.1 mmol/L
GLUCOSE – GESTATIONAL TOLERANCE TEST, P/S	Gestational Glucose Tolerance Test Interpretive Guidelines (Canadian Diabetes Guidelines (2013)): Gestational Diabetes Mellitus - glucose results meet ONE of the criteria below:

Test	Reference Intervals
	Fasting: >= 5.3 mmol/L 1h Glucose: >= 10.6 mmol/L 2h Glucose: >= 9.0 mmol/L
GLUCOSE – TOLERANCE TEST – 2 h, P/S	Glucose Tolerance Test Interpretive Guidelines (Non-pregnant; Canadian Diabetes Guidelines (2013)): Normal Glucose Tolerance: Fasting Glucose: 3.3 - 6.0 mmol/L AND 2h Glucose < 7.8 mmol/L Impaired Fasting Glucose and Impaired Glucose Tolerance: Fasting Glucose: 6.1 - 6.9 mmol/L AND 2h Glucose 7.8 - 11.0 mmol/L Diabetes Mellitus: Fasting Glucose: > 6.9 mmol/L OR 2h Glucose > 11.0 mmol/L
HEMOGLOBIN A1c (GLYCOSYLATED HGB), B	MALE AND FEMALE 0 – 100 yr 4.3 – 6.1% < 6 years Recommended target: HbA1c less than 8% for children less than 6 years. 2013 CDA Guidelines. CJD 2013:37:S153-162 6 – 12 years Recommended target: HbA1c less than or equal to 7.5% for children 6-12 years. 2013 CDA Guidelines. CJD 2013:37:S153-162 >12 years Recommended target: HbA1c less than or equal to 7.0% for males and non-pregnant females greater than 12 years. 2013 CDA Guidelines. CJD 2013:37:S31-34
HIV Rapid Antibody Screen, S	MALE AND FEMALE Non-Reactive
IMMUNOGLOBULINS (QUANTITATIVE), P/S	IgG MALE AND FEMALE g/L 0 – 2 mo 2.60 – 14.00 3 – 11 mo 2.80 – 16.00 1 – 2 yr 4.00 – 16.00 3 – 5 yr 5.40 - 16.00

Test	Reference Intervals
	6 – 7 yr 5.80 - 16.00 8 – 10 yr 6.20 - 17.00 11 – 15 yr 6.40 - 17.00 16 – 150 yr 6.80 - 18.00 IgA MALE AND FEMALE g/L 0 – 2 mo 0.00 – 1.40 3 – 5 mo 0.15 – 1.40 6 – 11 mo 0.20 – 1.40 1 yr 0.30 – 1.80 2 yr 0.40 – 2.20 3 – 5 yr 0.45 – 2.65 6 – 7 yr 0.55 – 3.10 8 – 10 yr 0.60 – 3.50 11 – 15 yr 0.65 – 4.15 16 – 150 yr 0.75 – 4.55 IgM MALE AND FEMALE g/L 0 – 2 mo 0.15 – 1.20 3 – 11 mo 0.25 – 1.50 1 – 2 yr 0.30 – 1.80 3 – 5 yr 0.35 – 2.10 6 – 10 yr 0.40 – 2.20 11 – 15 yr 0.45 – 2.40 16 – 150 yr 0.50 – 3.00
IRON, TOTAL IRON BINDING CAPACITY (TIBC), AND IRON SATURATION INDEX, S	IRON µmol/L MALE AND FEMALE 0 – 17 yr 5 – 25 MALE 18 – 150 yr 8 – 30 FEMALE 18 – 150 yr 6 – 28 TIBC µmol/L MALE AND FEMALE 0 – 17 yr 50 – 85 18 – 150 yr 40 – 80 IRON SATURATION INDEX: MALE AND FEMALE 0 – 150 yr 0.15 – 0.50

Test	Reference Intervals
LACTATE, Arterial	0.5 – 2.2 mmol/L
LACTATE, P	MALE AND FEMALE mmol/L 0 – 150 yr 0.5 – 2.2
LACTATE, CSF	MALE AND FEMALE mmol/L 0 – 150 yr 0.6 – 2.2
LACTOSE, P/S - TOLERANCE TEST - 2 h	Lactose Tolerance Interpretive Criteria: Normal: Rise in glucose of >1.7 mmol/L at any time post-lactose. Inconclusive: Rise in glucose of 1.1 - 1.7 mmol/L at any time post-lactose. Abnormal (query lactase deficiency): Rise in glucose of < 1.1 mmol/L at any time post-lactose.
LACTATE DEHYDROGENASE (LD), P/S	Reference range varies with instrument. Please refer to patient report for current value(s).
LUTEINIZING HORMONE (LH), P/S	MALE U/L 0 – 150 yr 1.2 – 10.6 FEMALE 0 – 9 yr <10.0 10 – 150 yr Follicular: 1.9 – 26.2 U/L Midcycle: 22.8 – 76.1 U/L Luteal: 0.6 – 16.6 U/L Post-Menopausal: On Menopausal Hormone Therapy (MHT) 1.1 – 52.4 Not on MHT 8.6 – 61.8
LIPASE, P/S	Reference range varies with instrument. Please refer to patient report for current value(s).
LIPID PROFILE, P/S	<u>Pediatric Lipid Profile (0 – 17 yr)</u> Total Cholesterol No reference range HDL-C No reference range LDL-C No reference range Triglycerides No reference range Non-HDL-C No reference range The following comment will be attached to the Non-HDL-C result: Lipid Profile acceptable limits relative to dyslipidemia and atherosclerosis risk: Total Cholesterol Acceptable <4.40 mmol/L HDL-C Acceptable >1.16 mmol/L LDL-C Acceptable <2.84 mmol/L Triglycerides Acceptable <0.85 mmol/L (0-9 years) OR

Test	Reference Intervals
	<1.02 mmol/L (10-17 years) Non-HDL-C Acceptable <3.10 <u>Adult Lipid Profile (18 – 150 yr)</u> Total Cholesterol No reference range HDL-C No reference range LDL-C 0.0 – 3.4 mmol/L Triglycerides 0.0 – 1.7 mmol/L Non-HDL-C 0.0 – 4.2 mmol/L The following comment will be attached to the Non-HDL-C result: For patients 30 years of age or older, the Framingham Risk Score (FRS), modified for family history, is recommended for risk assessment (2016 CCS Guideline, Can J Cardiol 2016): FRS Calculation Resources can be found at https://myhealth.alberta.ca/Alberta/Pages/Heart-Disease-Risk-Calculator.aspx. Low Risk (FRS < 10%) Treatment advised if LDL-C >= 5.0 mmol/L Treatment target: > 50% reduction LDL-C Intermediate Risk (FRS 10 - 19%) Treatment advised if LDL-C >= 3.5 mmol/L OR Non-HDL-C >= 4.3 mmol/L OR ApoB >= 1.2 g/L; Consider treatment for men>=50 and women>=60 yrs with one additional CV risk factor Treatment targets: LDL-C < 2.0 mmol/L OR decrease by > 50% OR Non-HDL-C < 2.6 mmol/L OR ApoB < 0.8 g/L High Risk (FRS >= 20% or presence of high risk features) Treatment advised in all patients Treatment targets: LDL-C < 2.0 mmol/L OR decrease by > 50% OR Non-HDL-C < 2.6 mmol/L OR ApoB < 0.8 g/L
LITHIUM, S	MALE AND FEMALE mmol/L 0 – 150 yr Suggested Range: Acute Mania Therapy 1.0 – 1.5 Bipolar Maintenance Therapy 0.6 – 1.2

Test	Reference Intervals
MAGNESIUM, 24 Hour Urine	MALE AND FEMALE mmol/d 0 – 150 yr < 9.00
MAGNESIUM, P/S	MALE, FEMALE, UNKNOWN mmol/L 0-150yrs 0.70-1.00
MALARIAL PARASITE SCREEN, B	Negative
MONONUCLEOSIS TEST, S	Negative
OCCULT BLOOD, F	Negative
OSMOLALITY, P/S	MALE AND FEMALE mmol/kg 0 – 150 yr 280 – 300
OSMOLALITY, Sweat	MALE AND FEMALE mmol/kg 0 – 12y Reference Range: 65 – 145 Borderline range: 146 – 204 Suggestive of cystic fibrosis: 205 – 330
OSMOLALITY, U	MALE AND FEMALE mmol/kg Random: 0 – 11 mo 50 – 645 1 – 150 yr 50 – 1200 24h Urine: 0 – 150 yr 300 – 900 After 12 h fluid restriction: 0 - 150 yr > 850
pH, Arterial – Cord Blood	pH 7.20 - 7.40
pH, Venous – Cord Blood	pH 7.25 - 7.45
PHENOBARBITAL, P/S	MALE AND FEMALE µmol/L Therapeutic Range 0 – 150 yr 65 – 170
PHENYTOIN, P/S	MALE AND FEMALE µmol/L Therapeutic Range 0 – 150 yr 40 – 80
PHOSPHATE, 24 Hour Urine	MALE AND FEMALE mmol/d Intake Dependent 0 – 11 yr < 30 12 – 150 yr < 50
PHOSPHATE, P/S	MALE, FEMALE and UNKNOWN mmol/L 0 – 14 d 1.40 – 2.70 15 d – 30 d 1.60 – 2.70 31 d – 4 yr 1.20 – 2.20 5 – 12 yr 1.10 – 1.90 13 – 17 yr 0.90 – 1.70 18 – 150 yr 0.70 – 1.50

Test	Reference Intervals
PROLACTIN, P/S	MALE ug/L 1 mo – 150 yr 2.5 – 17.4 FEMALE ug/L 0 – 150 yr Non-Pregnant 2.2 – 30.3 Pregnant 8.1 – 347.6 Post-Menopausal 0.7 – 31.5
PROTEIN – TOTAL, 24 Hour Urine	MALE AND FEMALE g/d 0 – 150 yr < 0.15
PROTEIN – TOTAL, CSF	MALE AND FEMALE g/L 0 – <1 mo 0.20 – 0.80 1 mo – 150 yr 0.15 – 0.50
PROTEIN – TOTAL, P/S	MALE, FEMALE and UNKNOWN g/L 0 – 364 d 40 – 70 365 d – 150 yr 62 – 82
PROTEIN – TOTAL, U	MALE AND FEMALE g/L 0 – 150 yr < 0.15
PROTEIN CREATININE RATIO, U	MALE AND FEMALE mg/mmol 0 - 150 y < 13.0
PT (PROTHROMBIN TIME), INR, P	0.8 - 1.2 Therapeutic Range: 2.0 - 3.0 **NOTE:** For some indications a higher target therapeutic range is required. Reference: February 2012, 141(2_suppl) Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-Based Practice Guidelines.
PTT (PARTIAL THROMBOPLASTIN TIME), P	Reference Range and Therapeutic Range varies with instrument. Please refer to patient report for current value.
RETICULOCYTE COUNT, B	RELATIVE (%): 0 – 1 mo 2.0 – 6.0 1 mo – 11 y 0.9 – 2.7 12y – 150 yr (F) 1.2 – 2.7 12y – 150 yr(M) 0.9 – 2.1 ABSOLUTE: Birth 78 – 110 x 10^9/L 1d – 1wk 78 – 396 x 10^9/L 1wk – 1m 60 – 372 x 10^9/L 1m – 6m 24 – 132 x 10^9/L 6m – 5y 33 – 143 x 10^9/L 6y – 11y 36 – 140 x 10^9/L 12y – 17y (F) 47 – 138 x 10^9/L 12y – 17y (M) 39 – 111 x 10^9/L

Test	Reference Intervals
	18 – 150 yr (F) 49 – 140 x 10^9/L 18 – 150 yr (M) 42 – 122 x 10^9/L
RHEUMATOID FACTOR QUANTITATIVE, P/S	MALE AND FEMALE kU/L 0 – 150 yr < 15
ROTAVIRUS	Negative
RSV (RESPIRATORY SYNCYTIAL VIRUS)	Negative
RSV and INFLUENZA A/B	Negative
SALICYLATE, P/S	MALE AND FEMALE mmol/L 0 – 150 yr < 0.20 Therapeutic 0.70 – 1.80
SEMINAL FLUID ANALYSIS, FERTILITY, Semf	Liquefaction Normal (complete within 60 minutes of collection) Volume > 1.4 mL Viscosity Normal (< 2 cm thread) pH > 7.1 Sperm concentration > 14.9 M/mL Total sperm count > 38.9 M RBC 0/hpf WBC 0/hpf Sperm Motility > 31% Progressive or > 39% Progressive and Non-progressive within 60 minutes of ejaculation Vitality > 57% live
SEMINAL FLUID ANALYSIS, POST VASECTOMY, Semf	None seen
STREPTOLYSIN O ANTIBODY, P/S	MALE AND FEMALE kU/L 0 – 150 yr < 200
T3 – FREE, P/S	MALE AND FEMALE pmol/L 4 – 30 d 3.0 – 8.1 31 d – 1 yr 2.4 – 9.8 2 – 6 yr 3.0 – 9.1 7 – 11 yr 4.1 – 7.9 12 – 17 yr 3.5 – 7.7 18 – 150 yr 3.5 – 6.5
THROMBIN TIME, P	Reference interval varies with instrument/testing location. Please refer to the patient report or look in NetCare or the EMR.
THYROXINE FREE (T4), P/S	MALE AND FEMALE pmol/L 0 – 13 d 10.0 – 54.0 14 d – 150 yr 9.0 – 23.0
TOBRAMYCIN – INTERVAL, P/S	No range.
TOBRAMYCIN – PEAK, P/S	MALE AND FEMALE mg/L

Test	Reference Intervals
	Therapeutic Range 0 – 150 yr 4.0 – 12.0
TOBRAMYCIN – RANDOM, P/S	No range
TOBRAMYCIN – TROUGH, P/S-	MALE AND FEMALE mg/L Therapeutic Range 0 – 150 yr < 2.0
TRIGLYCERIDE, P/S	MALE AND FEMALE: mmol/L 0 – 17 yr < 1.50 The following comment will be attached to the result: Acceptable limit relative to dyslipidemia and atherosclerosis risk <0.85 mmol/L (0-9 years) OR <1.02 mmol/L (10-17 years). 18 – 150 yr 0.00 – 1.70
TROPONIN I (TnI), P/S	Reference range varies with instrument. Please refer to patient report for current value(s).
TSH (THYROID STIMULATING HORMONE), P/S	MALE AND FEMALE mU/L 0 – 13 d 1.00 – 25.00 14 d – 76 d 1.00 – 10.00 77 d – <1 yr 0.40 – 7.00 1 yr – <5 yr 0.40 – 6.00 5 yr – <14 yr 0.30 – 5.00 14 – 150 yr 0.20 – 4.00
TSH PROGRESSIVE (THYROID STIMULATING HORMONE), P/S	MALE AND FEMALE mU/L 0 – 13 d 1.00 – 25.00 14 d – 76 d 1.00 – 10.00 77 d – <1 yr 0.40 – 7.00 1 yr – <5 yr 0.40 – 6.00 5 yr – <14 yr 0.30 – 5.00 14 – 150 yr 0.20 – 4.00
URATE, 24 Hour Urine	MALE AND FEMALE mmol/d 0 – 150 yr 1.5 – 4.5
URATE, P/S	MALE AND FEMALE µmol/L 0 – <1 mo 100 – 450 1 mo – 10 yr 120 – 350 MALE 11 – 14 yr 150 – 450 15 – 17 yr 200 – 480 18 – 150 yr 220 – 480 FEMALE 11 – 17 yr 150 – 360 18 – 150 yr 140 – 380

Test	Reference Intervals
UREA, 24 Hour Urine	MALE AND FEMALE mmol/d 0 – 150 yr 100 – 700
UREA, P/S	MALE, FEMALE, UNKNOWN mmol/L <2 yrs 1.0 – 7.5 2 – 17 2.0 – 7.0 MALE, UNKNOWN 18-55 yrs 3.0 – 8.0 >55 yrs 3.0 – 9.0 FEMALE 18-55 yrs 2.0 – 7.0 >55 yrs 3.0 – 8.0
URINALYSIS, U	MALE & FEMALE 0 – 150 yr Blood: Negative Clarity: Clear Color: Yellow Glucose: Negative Ketone: Negative Leukocytes: Negative Nitrite: Negative pH: 5 – 8 Protein: Negative SG: 1.005 – 1.030
URINALYSIS MICROSCOPIC, U	MALE AND FEMALE 0 – 150 yr WBC: 0 – 5/hpf RBC: 0 – 2/hpf Squamous epithelial cells: 0 – 5/hpf Non-squamous epithelial cells: 0 – 5/hpf Bacteria & other organisms: Negative Casts, hyaline: 0 – 2/lpf All other cast types: Negative Oval Fat Bodies, Trichomonas and Yeast: Negative
VALPROATE (VALPROIC ACID), P/S	MALE AND FEMALE µmol/L 0 – 150 yr Therapeutic Range 350 – 700 **NOTE:** Concentrations up to 1040 µmol/L may be required for some patients with complex partial seizures and secondarily generalized tonic-clonic seizures.
VANCOMYCIN, P - RANDOM	No range

Test	Reference Intervals
VANCOMYCIN, P - TROUGH	MALE AND FEMALE mg/L Therapeutic Range 0 – 150 yr 10.0 – 20.0
VITAMIN B12, P/S	MALE, FEMALE & UNKNOWN pmol/L 0 – <10 >249 10-150yrs >159

Blood Gases and Co-oximetry Reference Intervals

Test Name	Adult / Pediatric			
	Arterial	Venous	Mixed Venous	Capillary
pH	7.35 – 7.45	7.32 - 7.42	7.33 – 7.43	7.34 - 7.44
pCO_2 (mmHg)	35 – 45	40 - 50	37 – 47	37 – 47
pO_2 (mmHg)	70 – 90	30 - 50	35 – 45	40 – 60
HCO_3 (mmol/L)	20 – 26	22 - 28	21 – 27	21 – 27
tCO_2 (mmol/L)	21 – 28	23 - 30	22 – 29	22 – 29
Base Excess (mmol/L)	- 2 to +2	- 2 to +2	-2 to +2	- 2 to +2
O_2 Saturation (%)	92 – 98	60 - 80	70 – 80	90 – 95
tHb (g/L)	120 – 180	120 – 180		120 – 180
O_2Hb (%)	92 – 98	64 – 74		90 – 95
COHb (%)	0 – 3	0 – 3		0 – 3
MetHb (%)	0 – 1.5	0 – 1.5		0 – 1.5
HHb (%)	0 – 5	23 – 33		0 – 7
O2CT (mL/dL)	16 – 24	7 – 18		13 – 22
Aa DO2 (mmHg)	<15 Room Air <100 100% O2			

Test Name	Cord Blood	
	Arterial Cord Blood	Venous Cord Blood
pH	7.20 – 7.40	7.25 - 7.45
pCO_2 (mmHg)	32 – 66	27 – 49
pO_2 (mmHg)	6 – 30	17 – 41
HCO_3 (mmol/L)	17 – 27	16 – 25
tCO_2 (mmol/L)	19 – 29	18 – 27
Base Excess (mmol/L)	- 8 to +2	- 8 to +2
O_2 Saturation (%)	5 – 60	15 – 75