

Last Revised: (Revised 7/25/2020 by S. Pavlock)

Chemistry Reference Ranges:

DXC 600 Reference Ranges:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Acetaminophen	DXC 600		Therapeutic	10 - 30	ug/mL	> 150
			Hepatotoxic			
			4 hrs Post Ingestion	> 150	ug/ml	
			8 hrs Post Ingestion	> 75	ug/ml	
			12 hrs Post Ingestion	> 40	ug/ml	
A/G Ratio	Calculation			1.1 - 2.2		
Albumin (Bromcresol Purple)	DXC 600		0 Day - 14 Days	2.8 - 4.2	gm/dL	
			15 Days - <1 Year	2.5 - 4.7	gm/dL	
			1+ Years	3.5 - 5.0	gm/dL	
Alcohol (ETOH)	DXC 600			< 10 (none detected)	mg/dL	> 300
Alkaline Phosphatase	DXC 600	Both	0 - 4 Years	80 - 350	IU/L	
		Both	5 Years - 9 Years	60 - 385	IU/L	
		Both	10 Years - 13 Years	60 - 485	IU/L	
		Male	14 Years - 18 Years	50 - 350	IU/L	
		Female	14 Years - 18 Years	40 - 195	IU/L	
		Both	19+ Years	32 - 91	IU/L	
ALT (SGPT)	DXC 600	Male		17 - 63	IU/L	
		Female		14 - 54	IU/L	
Ammonia	DXC 600	Both	0 - 2 Weeks	< 90	umol/L	> 100
			2+ Weeks - <18 Years	< 50	umol/L	> 100
			18+ Years	9 - 35	umol/L	> 100
Amylase	DXC 600			28 - 100	U/L	
Anion Gap	DXC 600			7 - 17	mmol/L	
AST (SGOT)	DXC 600		0 Years - 4 Years	10 - 60	IU/L	
			5 Years - 9 Years	5 - 50	IU/L	
			10+ Years	15 - 41	IU/L	
Beta Hydroxybutyrate	DXC 600			0.0 - 0.3	mmol/L	
BUN	DXC 600			8 - 26	mg/dL	
BUN/Creatinine Ratio	Calculation			15 - 25	Ratio	
Calcium	DXC 600		0-2 days	6.2 - 11.0	mg/dL	< 5.8, > 13.3
			> 2 days	8.5 - 10.3	mg/dl	< 6.3, > 13.3
Cardiac Risk Factor	Calculation	Male		1/2 Average	3.43	
				Average	4.97	
				2X Average	9.55	
				3X Average	23.99	
		Female		1/2 Average	3.27	
				Average	4.44	
				2X Average	7.05	
				3X Average	11.04	

Chemistry Reference Ranges:

DXC 600 Reference Ranges: (cont.)

Chloride	DXC 600			98 - 110	mmol/L	
Cholesterol	DXC 600		0 - 17 Years	0 - 169 desirable	mg/dL	
				170-199 borderline high	mg/dL	
				>200 high	mg/dL	
			18+ Years	0 - 199 desirable	mg/dL	
				200-239 borderline high	mg/dL	
				>239 high	mg/dL	
CO2 (Carbon Dioxide)	DXC 600			22 - 32	mmol/L	< 10, > 40
CPK	DXC 600	Male		49 - 397	IU/L	
		Female		38 - 234	IU/L	
Creatinine	DXC 600	Male		0.61 - 1.24	mg/dl	> 10.0
		Female		0.44 - 1.03	mg/dl	> 10.0
CRP (High Sensitivity)	DXC 600			0.0 - 0.75	mg/dL	
Digoxin	DXC 600			0.8 - 2.0	ng/mL	> 2.4
Dilantin	DXC 600			10 - 20	ug/mL	> 30
Direct Bilirubin	DXC 600			0.1 - 0.5	mg/dL	
Gentamicin	DXC 600	Peak		5 - 10	ug/mL	> 10
		Trough		< 2	ug/ml	
GGT	DXC 600			7 - 50	IU/L	
Glomerular Filtration Rate	Calculation			> or = 60	ml/min./ 1.73 M ²	
				Normal or Mildly Decreased GFR		
				30 - 59		
				Moderate decrease in GFR		
				15 - 29		
Severe decrease in GFR						
				< 15		
				Kidney failure or Dialysis		
Chronic kidney disease is defined as either kidney damage or GFR < 60 mL/min/1.73 m ² for > or = 3 months. Kidney damage is defined as pathologic abnormalities or markers of damage including abnormalities in blood or urine tests or imaging studies. This GFR is NOT used for medication dosing.						
Glucose	DXC 600		0 Hrs - 4 Hrs	41 - 60	mg/dL	< 25, > 250
			4 Hrs - 1 Day	46 - 60	mg/dl	< 35, > 250
			1 Day - 2 Months	51 - 90	mg/dl	< 45, > 250
			2 Months - 16 Yrs	60 - 99	mg/dL	< 54, > 400
			16 year +	70 - 99	mg/dl	< 54, > 400
HDL (Direct)	DXC 600		0 Years - 17 Years	< 40 low	mg/dl	
				40 - 59 borderline low		
				> = 60 normal		
			18+ Years	40 - 60	mg/dl	

Chemistry Reference Ranges:

DXC 600 Reference Ranges: (cont.)

IgA	DXC 600		0-5 years	30 - 250	mg/dL	
			6+ years	66 - 436	mg/dl	
IgG	DXC 600		0-5 years	500 - 1550	mg/dL	
			6+ years	791 - 1643	mg/dl	
IgM	DXC 600			43 - 279	mg/dL	
Indirect Bilirubin	Calculation			0.0 - 1.0	mg/dL	
Ionized Calcium	AVL9180		0-1 day	1.08 - 1.28	mmol/L	
			1-2 days	1.00 - 1.18	mmol/L	
			3+ days	1.12 - 1.32	mmol/L	
Iron	DXC 600	Both	0 - 1 Month	100 - 250	ug/dL	
		Male	2+ Months	45 - 182	ug/dL	
		Female	2+ Months	28 - 170	ug/dl	
TIBC	Calculation			261 - 478	ug/dL	
% Saturation Fe	Calculation			> 16	%	
Lactic Acid	DXC 600			0.5 - 2.0	mmol/L	> 4.0
Lipase	DXC 600			22 - 51	IU/L	
LDH	DXC 600			98 - 192	IU/L	
LDL (Calculated and Direct)	Calculation		0 - 17 years	0 - 109 desirable	mg/dL	
				110 - 129 borderline high	mg/dL	
				> = 130 high	mg/dL	
			18 + years	0 - 99 optimal	mg/dL	
				100 - 129 near optimal	mg/dL	
				130 - 159 borderline high	mg/dL	
				160 - 189 high	mg/dL	
> = 190 very high	mg/dL					
Lithium	AVL 9180			0.5 - 1.3	meq/L	> 2.0
Magnesium	DXC 600			1.7 - 2.4	mg/dL	< 1.0, > 4.4
Osmolality, Serum	Osmometer			280 - 295	mosm/kg	
Phenobarbital	DXC 600			15 - 40	ug/mL	> 60
Phosphorus	DXC 600		0 - 9 Days	4.5 - 9.0	mg/dL	< 1.0
			10 Days - 2 Years	4.0 - 6.5	mg/dL	
			3 Years - 9 Years	3.2 - 5.8	mg/dL	
			10 Years - 15 Years	3.3 - 5.4	mg/dL	
			16+ Years	2.5 - 4.6	mg/dL	
Potassium	DXC 600		0 - 7 Days	3.2 - 5.5	mmol/L	< 2.5, > 6.5
			8 Days - 1 Year	3.4 - 6.0	mmol/L	< 2.5, > 6.5
			2+ Years	3.4 - 4.8	mmol/L	< 2.5, > 6.0

Chemistry Reference Ranges:

DXC 600 Reference Ranges: (cont.)

Prealbumin	DXC 600		18 - 38	mg/dL	
			10-17.9 mg/dL Indicates moderate protein calorie malnutrition < 10 mg/dL Indicates serious malnourishment.		
Salicylate	DXC 600		0 - 30	mg/dL	> 40
Sodium	DXC 600	0 - 1 Year	130- 145	mmol/L	< 120, > 160
		2+ Years	133 - 142		
Tegretol	DXC 600		4 - 12	ug/mL	> 20
Total Bilirubin	DXC 600	0-1 Day	1.4 - 8.7	mg/dL	> 12.0
		1-2 Days	3.4 - 11.5	mg/dL	
		3-5 Days	1.5 - 12.0	mg/dL	> 15.0
		> 5 Days	0.3 - 1.2	mg/dL	
Total Protein	DXC 600	0 Day - 1 Month	4.1 - 6.3	gm/dl	
		2 Month - 6 Months	4.4 - 6.7	gm/dl	
		7 Months - 1 Year	5.5 - 7.9	gm/dl	
		2+ Years	6.5 - 8.1	gm/dL	
Transferrin	DXC 600	Male	180 - 329	mg/dL	
		Female	192 - 382	mg/dl	
Triglycerides	DXC 600	0 - 17 Years	0 - 89 normal	mg/dL	
			90 - 129 borderline high	mg/dL	
			> = 130 high	mg/dL	
		18+ Years	0 - 149 normal	mg/dL	
			150-199 borderline high	mg/dL	
			200-499 high	mg/dL	
> 499 very high	mg/dL				
Uric Acid	DXC 600	Both	0 - 11 Years	1.0 - 6.6	mg/dl
		Male	12 Years - 19 Years	3.0 - 7.7	mg/dl
		Female	12 Years - 19 Years	2.7 - 5.7	mg/dl
		Male	20+ Years	4.8 - 8.7	mg/dl
		Female	20+ Years	2.6 - 8.0	mg/dl
Valproic Acid	DXC 600		50 - 100	ug/mL	> 150
Vancomycin	DXC 600	Peak	20 - 40	ug/mL	> 40
		Trough	10 - 15	ug/ml	
VLDL	Calculation		8 - 39	mg/dL	

Chemistry Cerebrospinal Fluid Tests

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Glucose, Spinal Fluid	DXC 600			40 - 70	mg/dL	< 25
Protein, Spinal Fluid	DXC 600			15 - 45	mg/dL	
CSF Color	Visual			Clear		Xanthochromic

Chemistry Urine Tests:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Amylase Creatinine Clearance Ratio	DXC 600			0 - 5	%	
Urea Nitrogen, 24 Hour, Urine	DXC 600			12 - 20	gm/24hr	
Calcium, 24 Hour, Urine	DXC 600			100 - 300	mg/24hr	
Calcium, Random, Urine	DXC 600			None		
Chloride, 24 Hour, Urine	DXC 600			110 - 250	meq/24hr	
Chloride, Random, Urine	DXC 600			None		
Creatinine 24 Hour, Urine	DXC 600	Male		800 - 2000	mg/24hr	
		Female		600 - 1800	mg/24hr	
Creatinine Clearance, 24 Hour, Urine	DXC 600	Male		74 - 140	mL/min	
		Female		74 - 130	mL/min	
Glucose, 24 Hour, Urine	DXC 600			0 - 0.5	g/24hr	
Magnesium, 24 Hour, Urine	DXC 600			72.9 - 121.5	mg/24hr	
Magnesium, Random, Urine	DXC 600			None		
Albumin, 24 Hour, Urine	DXC 600					
Albumin, 24 Hr, U	Calc			<30	mg/24hr	
			30-300 mg/24hr is indicative of Albuminuria > 300 mg/24hr is indicative of Clinical Albuminuria			
Ur Albumin Excretion Rate			20-200 ug/min is indicative of Albuminuria > 200 ug/min is indicative of Clinical Albuminuria	<20	ug/min	
Albumin:Creatinine Ratio, Random Ur	Calc	Male		<17	mg/G	
		Female		<25		
			17 - 299 mg/g in males is indicative of Albuminuria 25 - 299 mg/g in females is indicative of Albuminuria			
			> 300 mg/G in both males and females is indicative of Clinical Albuminuria			
Osmolality, Random, Urine	Osmometer			50 - 1200	mosm/kg	
Phosphorous, 24 Hour, Urine	DXC 600			0.4 - 1.3	gm/24hr	
Potassium, 24 Hour, Urine	DXC 600			25 - 125	meq/24hr	
Potassium, Random, Urine	DXC 600			None		
Sodium, 24 Hour, Urine	DXC 600			40 - 220	meq/24hr	
Sodium, Random, Urine	DXC 600			None		
Protein, 24 Hour, Urine	DXC 600	Male		31 - 137	mg/24hr	
		Female		27 - 93	mg/24hr	
Protein, Random, Urine				< 10	mg/dL	
Uric Acid, 24 Hour, Urine	DXC 600			0.25 - 0.75	gm/24hr	
Uric Acid, Random, Urine	DXC 600			None		

Chemistry Urine Drug Screening Tests:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Amphetamines (AMPH)	DXC 600			Negative = < 1000	ng/mL	
Barbiturates (BARB)	DXC 600			Negative = < 200	ng/mL	
Benzodiazepine (BENZ)	DXC 600			Negative = < 200	ng/mL	
Buprenorphine (BUP)	Med-Tox			Negative = < 10	ng/mL	
Cannabinoid (TCH50)	DXC 600			Negative = <50	ng/mL	
Cocaine Metabolites (COCM)	DXC 600			Negative = < 300	ng/mL	
Fentanyl (FENT)	DXC 600			Negative = < 1.0	ng/mL	
Methadone (METD)	DXC 600			Negative = < 300	ng/mL	
Oxycodone (OXY)	DXC 600			Negative = < 100	ng/mL	
Opiate (OP)	DXC 600			Negative = < 300	ng/mL	
Phencyclidine (PCP)	DXC 600			Negative = < 25	ng/mL	
Urine Alcohol	DXC 600			Negative - < 20	mg/dL	

Chemistry Reference Ranges: (cont.)

Glucose Tolerance Test (75 grams of Glucola)

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Fasting Glucose	DXC 600			70 -99	mg/dL	< 54, > 400
1 Hour Glucose	DXC 600			70 - 199	mg/dL	< 54, > 400
2 Hour Glucose	DXC 600			70 - 139	mg/dL	< 54, > 400
3 Hour Glucose	DXC 600			70 - 99	mg/dL	< 54, > 400
4 Hour Glucose	DXC 600			70 - 99	mg/dL	< 54, > 400
5 Hour Glucose	DXC 600			70 - 99	mg/dL	< 54, > 400
6 Hour Glucose	DXC 600			70 - 99	mg/dL	< 54, > 400

Gestational Glucose Tolerance, 2 Hour (ADA Recommendations) 75 g Glucola

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Fasting Glucose	DXC 600			70 - 91	mg/dL	< 54, > 400
1 Hour Glucose	DXC 600			70 - 179	mg/dL	< 54, > 400
2 Hour Glucose	DXC 600			70 - 152	mg/dL	< 54, > 400

Gestational Glucose Tolerance, 3 Hour (ACOG Recommendations) 100 g Glucola

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Fasting Glucose	DXC 600			70 - 94	mg/dL	< 50, > 400
1 Hour Glucose	DXC 600			70 - 179	mg/dL	< 50, > 400
2 Hour Glucose	DXC 600			70 - 154	mg/dL	< 50, > 400
3 Hour Glucose	DXC 600			70 - 139	mg/dL	< 50, > 400

Gestational Diabetes Screen (ACOG Recommendations) 50 g Glucola

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
1 Hour Glucose	DXC 600			70 - 134	mg/dL	< 54, > 400

2 Hour Post-Prandial Glucose Test:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
2 Hour Glucose	DXC 600			70 - 139	mg/dL	< 54, > 400

Insulin Resistance with Glucose - 2 Hour

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Fasting Glucose	DXC 600			70 - 99	mg/dL	< 54, > 400
1 Hour Glucose	DXC 600			70 - 199	mg/dL	< 54, > 400
2 Hour Glucose	DXC 600			70 - 139	mg/dL	< 54, > 400
Fasting Insulin	DXI 600			1.9 - 23.0	uIU/mL	
1 Hour Insulin	DXI 600			No Ref Range	uIU/mL	
2 Hour Insulin	DXI 600			No Ref Range	uIU/mL	

Beckman DXI :

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Beta HCG	Dxl	Female	Negative for pregnancy	0.0 - 4.9	miU/mL	
			Indeterminate-Suggest repeat testing in 72 hours	5.0 - 25.0	miU/mL	
			Positive for pregnancy	> 25.0	miU/mL	
BNP	Dxl			0 - 100	pg/mL	
CA 15-3	Dxl			0.0 - 31.3	U/mL	
CA 125	Dxl			0 - 35	U/mL	
CEA	Dxl		Smokers	< 5.0	ng/mL	
			Non-Smokers	< 3.0	ng/ml	
Cortisol	Dxl		AM	6.7 - 22.6	ug/dL	
			PM	< 10	ug/dl	
Estradiol, Sensitive	Dxl	Male	0 to < 1 Year	< 15.0 - 38.2	pg/mL	
			1 to < 12 (pre-puberty) Years	< 15.0	pg/mL	
			12 to < 19 (puberty) Years	< 15.0 - 34.8	pg/mL	
		Female	19+ Years	< 15.0 - 31.5	pg/mL	
			0 to < 1 Year	< 15.0 - 38.2	pg/mL	
			1 to < 12 (pre-puberty) Years	< 15.0 - 16.0	pg/mL	
			12 to < 19 (puberty) Years	< 15.0 - 196.0	pg/mL	
			19+ Years	See Non-pregnant Females below		
			Non-Pregnant Females	Days from hLH Peak (Day 0)		
		Post-Menopausal Females	-14 to -10 (Early Follicular)	22.4 - 115.0	pg/mL	
			-9 to -4 (Mid Follicular)	25.0 - 115.0	pg/mL	
			0 (Ovulatory Peak)	32.1 - 517.0	pg/mL	
			+4 to +11 (Mid Luteal)	36.5 - 246.0	pg/mL	
Not on hormone therapy	< 15.0 - 25.1		pg/mL			
Ferritin	Dxl	Male		23.9 - 336.2	ng/ml	
		Female		11.0 - 306.8	ng/ml	
Folate	Dxl			≥ 5.9	ng/mL	
hFSH	Dxl	Male		1.27 - 19.26	miU/mL	
		Female	mid-follicular phase	3.85 - 8.78	miU/mL	
			mid-cycle peak	4.54 - 22.51	miU/mL	
			mid-luteal phase	1.79 - 5.12	miU/mL	
			Post-menopausal	16.74 - 113.59	miU/mL	
HybriTech % Free PSA (DRE NEGATIVE) (if Total PSA is 4.0 - 10.0)	Dxl		Probability of Cancer			
			56%	0 - 10	%	
			28%	10 - 15	%	
			20%	15 - 20	%	
			16%	20 - 25	%	
8%	> 25	%				
HybriTech PSA (total)	Dxl			0.0 - 4.0	ng/mL	
Insulin	Dxl			1.9 - 23.0	uIU/mL	
hLH	Dxl	Male		1.24 - 8.62	miU/mL	
		Female	mid-follicular phase	2.12 - 10.89	miU/mL	
			mid-cycle peak	19.18 - 103.03	miU/mL	
			mid-luteal phase	1.20 - 12.86	miU/mL	
			Post-menopausal	10.87 - 58.64	miU/mL	
Myoglobin	Dxl	Male		17.4 - 105.7	ng/mL	
		Female		14.3 - 65.8	ng/mL	
Progesterone	Dxl	Male		0.14 - 2.06	ng/mL	
		Female	Non-Pregnant:			
			mid-follicular phase	0.31 - 1.52	ng/mL	
			mid-luteal phase	5.16 - 18.56	ng/mL	
			Pregnant:			
			first trimester	4.73 - 50.74	ng/mL	
			second trimester	19.41 - 45.30	ng/mL	
			Post-menopausal	< 0.08 - 0.78	ng/mL	
		(not on hormone therapy)				

Beckman DXI : (cont.)

Procalcitonin, Plasma or Serum	Dxl	Both		<0.50	ng/dL	
Prolactin	Dxl	Male		2.64 - 13.13	ng/mL	
		Female	Premenopausal	3.34 - 26.72	ng/mL	
			Postmenopausal	2.74 - 19.64	ng/mL	
PTH, Intact	Dxl			12 - 88	pg/mL	
Rubella	Dxl		Negative (non-reactive)	< 10	IU/mL	
			Equivocal	10.0 - 14.9	IU/mL	
			Positive (reactive)	15.0 - > 500.0	IU/mL	
SARS-CoV-2 IgG Antibody	Dxl		Negative (non-reactive)			
Testosterone, Total, Serum	Dxl	Male		175 - 781	ng/dL	
		Female		10 - 75	ng/dL	
T3, Free	Dxl			2.5 - 3.9	pg/mL	
T3, Total	Dxl		0 Day - 30 Days	0.48 - 1.84	ng/ml	
			1 Month - 1 Year	0.73 - 2.29	ng/ml	
			2 Years - 5 Years	0.93 - 2.16	ng/ml	
			6 Years - 10 Years	1.04 - 1.98	ng/ml	
			11+ Years	0.87 - 1.78	ng/mL	
T4, Free	Dxl		0 Day - 10 Years	0.60 - 1.34	ng/dL	> 6.00
			11-18 Years	0.50 - 1.25	ng/dL	> 6.00
			19+ Years	0.61 - 1.12	ng/dL	> 6.00
T4, Total	Dxl		0 Day - 7 Days	8.2 - 21.5	ug/dL	
			8 Days - 3 Months	7.2 - 15.6	ug/dL	
			4 Months - 2 Years	5.5 - 14.5	ug/dL	
			3+ Years	5.0 - 11.5	ug/dL	
Troponin-I	Dxl			<0.03	ng/mL	≥ 0.04
TSH (3rd Generation)	Dxl		0 days - 1 day	2.43 - 24.03	uIU/mL	
			1 day - 2 days	1.9 - 17.58	uIU/mL	
			2 days - 3 days	1.4 - 13.1	uIU/mL	
			3 days - 4 days	0.94 - 9.65	uIU/mL	
			4 days - 1 week	0.6 - 6.82	uIU/mL	
			1 week - 5 years	0.57 - 5.58	uIU/mL	
			5 years - 8 years	0.56 - 5.41	uIU/mL	
			8 years - 12 years	0.55 - 5.31	uIU/mL	
			12 years - 15 years	0.53 - 5.16	uIU/mL	
			15 years - 18 years	0.52 - 5.05	uIU/mL	
			18+ years	0.45 - 5.33	uIU/mL	
Vitamin B12	Dxl			180 - 914	pg/ml	
Vitamin D-25 Hydroxy	DXI		Deficient	< 20	ng/mL	
			Insufficient	20 - 29	ng/mL	
			Sufficient	30 - 100	ng/mL	
			Upper Safety Limit	> 100	ng/mL	

Tosoh G8

HbA1c (in % units)	Tosoh G8		Normal	4.0 - 5.6	% A1c	
			Prediabetes	5.7 - 6.4		
			Diabetes	>6.5		
eAG (Estimated Average Glucose)	Calc			68 - 114	mg/dL	

Hepatitis & HIV Testing:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Hepatitis B Surface Antigen	Ortho Vitros			Negative		
Hepatitis B Surface Antibody	Ortho Vitros			Negative		
HBsAb Quantitative	Ortho Vitros			< 5.00 = Negative		
				5.00 - 11.99 = Indeterminate		
				> 11.99 = Positive		
Hep B Core IgM Antibody	Ortho Vitros			Negative		
Hep B Core Total Antibodies (IgG & IgM)	Ortho Vitros			Negative		
Hepatitis A IgM	Ortho Vitros			Negative		
Hepatitis C Virus	Ortho Vitros			Negative		
HIV-1 and HIV-2 Ab, p24 Ag	Ortho Vitros & Alere Determine			Negative (Non-Reactive)		

Electrophoresis:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Electrophoresis, Protein, Serum	Sebia		Total Protein	6.5 - 8.1	gm/dL	
			Albumin	3.0 - 5.0	gm/dL	
			Alpha-1	0.13 - 0.33	gm/dL	
			Alpha-2	0.56 - 1.13	gm/dL	
			Beta	0.60 - 1.25	gm/dL	
			Gamma	0.53 - 1.48	gm/dL	
			A/G Ratio	1.13 - 2.69		
Electrophoresis, Protein, Urine	Sebia			No Monoclonal Protein		
Immunofixation, Serum	Sebia			No Monoclonal Protein		
Immunofixation, Urine	Sebia			No Monoclonal Protein		

Last Reviewed: (Updated 8.18.2020)

By: Dr. Heidi Budke

(BVH and ACC shared reference ranges)

Hematology Reference Ranges:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
WBC	DXH800 DXH600		0-1 Day	9.0 - 30.0	x10 ³ / uL	< 2.0 and >50.0
			1-4 Days	9.4 - 34.0		
			4 Days - 1 Month	5.0 - 20.0		
			1 Month - 6 Months	4.0 - 19.5		
			6 Months-2 Years	6.0 - 17.0		
			2-6 Years	5.0 - 15.5		
			6-18 Years	4.5 - 13.5		
	Male	> or = 18 Years	4.5 - 11.0			
	Female	> or = 18 Years	4.5 - 11.0			

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
RBC	DXH800 DXH600		0-1 Day	3.90 - 5.90	x10 ⁶ / uL	
			1-3 Days	3.90 - 5.90		
			4 Days - 1 Month	3.90 - 5.90		
			1 Month - 6 Months	3.30 - 5.30		
			6 Months-2 Years	3.90 - 4.80		
			2-6 Years	3.70 - 4.90		
			6-18 Years	3.80 - 5.60		
	Male	> or = 18 Years	4.30 - 5.80			
	Female	> or = 18 Years	3.80 - 5.20			

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range			
Hemoglobin (Hgb)	DXH800 DXH600		0-1 Day	19.0 - 30.0	g/dL	< 9.5 and >22.5			
			1-3 Days	14.5 - 22.5					
			4 Days - 1 Month	13.4 - 19.8					
						1-2 Months	10.7 - 17.1	g/dL	< 6.9 and > 20.8
						2-6 Months	9.4 - 13.0		
						6 Months-2 Years	10.5 - 13.5		
						2-6 Years	11.5 - 13.5		
				6-12 Years	11.5 - 15.5	g/dL	< 6.6 and > 19.9		
				Male	12-18 Years			13.0 - 16.0	
				Female	12-18 Years			12.0 - 16.0	
				Male	18 Years and Older			13.5 - 17.5	
Female	18 Years and Older	12.0 - 16.0							

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Hematocrit (Hct)	DXH800 DXH600		0-4 Days	45 - 67	%	
			4 Days - 1 Month	41 - 65		
			1-2 Months	33 - 55		
			2-6 Months	28 - 42		
			6 Months-2 Years	33 - 39		
			2-6 Years	34 - 40		
			6-12 Years	35 - 45		
	Male	12-18 Years	36 - 50			
	Female	12-18 Years	37 - 45			
	Male	18 Years and Older	41 - 53			
	Female	18 Years and Older	36 - 46			

Hematology Reference Ranges: (cont.)

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
MCH	DXH800 DXH600		0-1 Day	30 - 37	pg	
			1-3 Days	30 - 37		
			4 Days - 1 Month	30 - 37		
			1-6 Months	29 - 36		
			6 Months-2 Years	24 - 30		
			2-6 Years	25 - 31		
			6-18 Years	25 - 34		
		Male > or = 18 Years	27 - 35			
		Female > or = 18 Years	27 - 35			

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
MCHC	DXH800 DXH600		0-4 Days	29.0 - 37.0	g/dL	
			4 Days - 1 Month	28.1 - 34.7		
			1-2 Months	28.1 - 35.5		
			2-6 Months	28.3 - 35.3		
			6 Months-2 Years	30.0 - 36.0		
			2-6 Years	31.0 - 37.0		
			6-12 Years	31.0 - 37.0		
		Male 12-18 Years	31.0 - 37.0			
		Female 12-18 Years	31.0 - 37.0			
		Male 18 Years and Older	31.0 - 37.0			
Female 18 Years and Older	31.0 - 37.0					

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
MCV	DXH800 DXH600		0-4 Days	95 - 121	fL	
			4 Days - 1 Month	88 - 122		
			1-2 Months	91 - 111		
			2-6 Month	84 - 106		
			6 Months-2 Years	70 - 86		
			2-6 Years	75 - 87		
			6-12 Years	77 - 95		
		Male 12-18 Years	78 - 98			
		Female 12-18 Years	78 - 98			
		Male 18 Years and Older	80 - 100			
Female 18 Years and Older	80 - 100					

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Platelet Count	DXH800 DXH600		0-3 Days	150 - 350	x10 ³ / uL	< 50 > 999
			4 Days- 1 Month	150 - 350		
			1-2 Months	150 - 350		
			2-6 Months	150 - 350		
			6 Months-2 Years	150 - 350		
			2-6 Years	150 - 350		
			6-12 Years	150 - 350		
		Male 12-18 Years	150 - 350			
		Female 12-18 Years	150 - 350			
		Male > or = 18 Years	150 - 350			
		Female > or = 18 Years	150 - 350			

Hematology Reference Ranges: (cont.)

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
RDW-CV	LH750		0-7 months	14.9 - 18.7		
	DXH800		> 7 months	11.6 - 14.8		
	DXH600					

Test	Method	Sex	Criteria	Reference Range	Units %	Critical Range
Automated Differential	LH750 DXH800 DXH600	Male	NEUT%	see below	%	
			LYMPH%	see below		
			MONO%	4.7 - 13.9		
			EOS%	0.0 - 6.1		
			BASO%	0.0 - 1.2		
		Female	NEUT%	see below		
			LYMPH%	see below		
			MONO%	3.7 - 11.9		
			EOS%	0.0 - 5.4		
			BASO%	0.0 - 1.5		
Neutrophil			Criteria	x 10 ³ /uL	%	
			0 Day	6.0 - 28.0	68 (54.4 - 81.6)	
			24 Hour	5.0 - 21.0	61 (48.8 - 73.2)	
			1 Week	1.5 - 10	45 (36 - 54)	
			2 Week	1 - 9.5	40 (32 - 48)	
			1 Month	1 - 8.5	35 (28 - 42)	
			6 Month	1 - 8.5	32 (25.6 - 38.4)	
			1 Year	1.5 - 8.5	31 (24.8 - 37.2)	
			2 Year	1.5 - 8.5	33 (26.4 - 39.6)	
			4 Year	1.5 - 8.5	42 (33.6 - 50.4)	
			6 Year	1.5 - 8	51 (40.8 - 61.2)	
			8 Year	1.5 - 8	53 (42.4 - 63.6)	
			10 Year	1.5 - 8.5	54 (43.2 - 64.8)	
			16 Year	1.8 - 8	57 (45.6 - 68.4)	
21-older	1.8 - 7.7	59 (47.2 - 70.8)				

Lymphocyte			Criteria	x 10 ³ /uL	%
			0 Day	2 - 11	24 (19.2 - 28.8)
			24 Hour	2 - 11.5	31 (24.8 - 37.2)
			1 Week	2 - 17	41 (32.8 - 49.2)
			2 Week	2 - 17	48 (38.4 - 57.6)
			1 Month	2.5 - 16.5	56 (44.8 - 67.2)
			6 Month	4 - 13.5	61 (48.8 - 73.2)
			2 Year	3 - 9.5	59 (47.2 - 70.8)
			4 Year	2 - 8	50 (40 - 60)
			6 Year	1.5 - 7	42 (33.6 - 50.4)
			8 Year	1.5 - 6.8	39 (31.2 - 46.8)
			10 Year	1.5 - 6.5	38 (30.4 - 45.6)
			16 Year	1.2 - 5.2	35 (28 - 42)
21-older	1 - 4.8	34 (27.2 - 40.8)			

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Automated Retic	DXH800 DXH600		0-1 Day	0.3 - 2.5	%	
			1-4 Days	1.8 - 4.6		
			4 Days - 6 Months	0.1 - 1.7		
			6 Months - 2 Years	0.7 - 2.3		
			2-18 Years	0.5 - 1.0		
		Male	> or = 18 Years	0.8 - 2.5		
		Female	> or = 18 Years	0.8 - 4.1		

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
ESR	Sedimat	Male	< 50 years	0 - 20	mm	N/A
			> 50 years	0 - 23		
		Female	< 50 years	0 - 23		
			> 50 years	0 - 30		

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Monospot	Manual			Negative		

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Bloodborn Parasite Sc	Manual			No parasites seen.		Any parasites seen.

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Semen Analysis, Post	Manual	Male		No sperm seen.		

Coagulation Reference Ranges:

BCS and XP Analyzers:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
INR	BCS/XP					>5.0
Protime (PT)	BCS/XP		Mean = 10.4	8.9-11.9	sec	
PTT	BCS/XP		23.5	19.2-27.8	sec	> 100
Fibrinogen	BCS/XP		300	258-518	mg/dL	< 75

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Anti-Factor Xa	BCS/XP		at 4 hr Post LMWH Dose	0.6 - 1.0	IU/mL	for twice daily dose

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
D-Dimer	BCS XP			<0.5	mg/L FEU	Considered Negative for VTE Requires further clinical evaluation.
				≥0.5		

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Platelet Function Analysis	PFA		COL/EPI	71 - 192	sec	N/A
			COL/ADP	55 - 115	sec	

Last Updated: 05/13/2020 by SDP

Reviewed. No changes required. H Budke, M.D.

Hematology Tests with Critical Ranges:

Test	Method	Sex	Criteria	Reference Range	Units
WBC	LH750 DXH800 DXH600	Male Female	0-1 Day	9.0 - 30.0	x10 ³ / uL
			1-3 Days	9.4 - 34.0	
			4 Days - 1 month	5.0 - 20.0	
			1 month - 6 months	4.0 - 19.5	
			6 months - 2 years	6.0 - 17.0	
			2 - 6 years	5.0 - 15.5	
			6 - 18 years	4.5 - 13.5	
			> or = 18 years	4.5 - 11.0	
			> or = 18 years	4.5 - 11.0	

Test	Method	Sex	Criteria	Reference Range	Units
Hemoglobin (Hgb)	LH750 AND DXH800 DXH600	Male Female	0-1 Day	19.0 - 30.0	g/dL
			1-3 Days	14.5 - 22.5	
			4 Days - 1 month	13.4 - 19.8	
			1-2 months	10.7 - 17.1	g/dL
			2-6 months	9.4 - 13.0	
			6 months - 2 years	10.5 - 13.5	
			2-6 years	11.5 - 13.5	
			6-12 years	11.5 - 15.5	g/dL
			12-18 years	13.0 - 16.0	
			18 years and older	13.5 - 17.5	
			12-18 years	12.0 - 16.0	
18 years and older	12.0 - 16.0				
Platelet Count	LH750 AND DXH800 DXH600			150 - 400	x10 ³ / uL

Absolute Neutrophil			NEUT#		
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Test	Method	Sex	Criteria	Reference Range	Units
Bloodborn Parasite Screen	Manual			No parasites seen.	

BCS and XP Analyzers:

Test	Method	Sex	Criteria	Reference Range	Units
INR	BCS/XP				
PTT	BCS/XP		Mean = 26.5	21.7 - 31.2	sec
Fibrinogen	BCS/XP		Mean = 388	258 - 518	mg/dL

Chemistry Tests with Critical Ranges:

Test	Method	Sex	Criteria	Reference Range	Units
Acetaminophen	DXC 600		Therapeutic	10 - 30	ug/mL
			Hepatotoxic		
			4 hrs Post Ingestion	> 150	ug/ml
			8 hrs Post Ingestion	> 75	ug/ml
			12 hrs Post Ingestion	> 40	ug/ml
Alcohol (ETOH)	DXC 600			< 10 (none detected)	mg/dL
Ammonia	DXC 600	Both	0 - 2 Weeks	< 90	umol/L
			2+ Weeks - <18 Years	< 50	umol/L
			18+ Years	9 - 35	umol/L
Calcium	DXC 600		0-2 days	6.2 - 11.0	mg/dL
			> 2 days	8.5 - 10.3	mg/dl
CO2 (Carbon Dioxide)	DXC 600			22 - 32	mmol/L
Creatinine	DXC 600	Male		0.61 - 1.24	mg/dl
		Female		0.44 - 1.03	mg/dl
Digoxin	DXC 600			0.8 - 2.0	ng/mL
Dilantin	DXC 600			10 - 20	ug/mL
Gentamicin	DXC 600		Peak	5 - 10	ug/mL
			Trough	< 2	ug/ml
Glucose	DXC 600		0 Hrs - 4 Hrs	41 - 60	mg/dL
			4 Hrs - 1 Day	46 - 60	mg/dl
			1 Day - 2 Months	51 - 90	mg/dl
			2 Months - 16 Yrs	60 - 99	mg/dL
			16 year +	70 - 99	mg/dl
Lactic Acid	DXC 600			0.5 - 2.0	mmol/L
Lithium	AVL 9180			0.5 - 1.3	meq/L
Magnesium	DXC 600			1.7 - 2.4	mg/dL
Phenobarbital	DXC 600			15 - 40	ug/mL
Phosphorus	DXC 600		0 - 9 Days	4.5 - 9.0	mg/dL
			10 Days - 2 Years	4.0 - 6.5	mg/dL
			3 Years - 9 Years	3.2 - 5.8	mg/dL
			10 Years - 15 Years	3.3 - 5.4	mg/dL
			16+ Years	2.5 - 4.6	mg/dL
Potassium	DXC 600		0 - 7 Days	3.2 - 5.5	mmol/L
			8 Days - 1 Year	3.4 - 6.0	mmol/L
			2+ Years	3.4 - 4.8	mmol/L
Salicylate	DXC 600			0 - 30	mg/dL
Sodium	DXC 600		0 - 1 Year	130 - 145	mmol/L
			2+ Years	133 - 142	
Tegretol	DXC 600			4 - 12	ug/mL
Total Bilirubin	DXC 600		0-1 Day	1.4 - 8.7	mg/dL
			1-2 Days	3.4 - 11.5	mg/dL
			3-5 Days	1.5 - 12.0	mg/dL
			> 5 Days	0.3 - 1.2	mg/dL
T4, Free	Dxl		0 Day - 10 Years	0.60 - 1.34	ng/dL
			11-18 Years	0.50 - 1.25	ng/dL
			19+ Years	0.61 - 1.12	ng/dL
Troponin-I	Dxl			<0.03	ng/mL
Valproic Acid	DXC 600			50 - 100	ug/mL
Vancomycin	DXC 600		Peak	20 - 40	ug/mL
			Trough	10 - 15	ug/ml
CSF Glucose	DXC 600			40 - 70	mg/dL
CSF Xanthochromia	Visual			Clear	

HIV 1/2 Ag/Ab Combo - Alere	Kit	BVH and AFCCC Critical	Tests Negative	
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Glucose Tolerance Test (75 grams of Glucola)

Test	Method	Sex	Criteria	Reference Range	Units
Fasting Glucose	DXC 600			70 - 99	mg/dL
1 Hour Glucose	DXC 600			70 - 199	mg/dL
2 Hour Glucose	DXC 600			70 - 139	mg/dL
3 Hour Glucose	DXC 600			70 - 99	mg/dL
4 Hour Glucose	DXC 600			70 - 99	mg/dL
5 Hour Glucose	DXC 600			70 - 99	mg/dL
6 Hour Glucose	DXC 600			70 - 99	mg/dL

Gestational Glucose Tolerance, 2 Hour (ADA Recommendations) 75 g Glucola

Test	Method	Sex	Criteria	Reference Range	Units
Fasting Glucose	DXC 600			70 - 91	mg/dL
1 Hour Glucose	DXC 600			70 - 179	mg/dL
2 Hour Glucose	DXC 600			70 - 152	mg/dL

Gestational Glucose Tolerance, 3 Hour (ACOG Recommendations) 100 g Glucola

Test	Method	Sex	Criteria	Reference Range	Units
Fasting Glucose	DXC 600			70 - 94	mg/dL
1 Hour Glucose	DXC 600			70 - 179	mg/dL
2 Hour Glucose	DXC 600			70 - 154	mg/dL
3 Hour Glucose	DXC 600			70 - 139	mg/dL

Gestational Diabetes Screen (ACOG Recommendations) 50 g Glucola

Test	Method	Sex	Criteria	Reference Range	Units
1 Hour Glucose	DXC 600			70 - 134	mg/dL

2 Hour Post-Prandial Glucose Test:

Test	Method	Sex	Criteria	Reference Range	Units
2 Hour Glucose	DXC 600			70 - 139	mg/dL

Insulin Resistance with Glucose - 2 Hour

Test	Method	Sex	Criteria	Reference Range	Units
Fasting Glucose	DXC 600			70 - 99	mg/dL
1 Hour Glucose	DXC 600			70 - 199	mg/dL
2 Hour Glucose	DXC 600			70 - 139	mg/dL
Fasting Insulin	DXI 600			1.9 - 23.0	uIU/mL
1 Hour Insulin	DXI 600			No Ref Range	uIU/mL
2 Hour Insulin	DXI 600			No Ref Range	uIU/mL

Microbiology Tests with Critical Ranges:

Testing Area:	Test type		Test	Reference Range	Source
Microbiology	Culture		Blood	Negative	Blood
			CSF	Negative	CSF
			Acid Fast Bacillus	Negative	All
			Group A Strep Backup	Negative	Throat
			Group B Strep	Negative	Nursery only
			Gonorrhoea	Negative	All
			HSV Type II	Negative	congenital
		Organism	MDRO	Negative	All
			CRE	Negative	All
			ESBL	Negative	All
			VRE	Negative	All
	MRSA	Negative	All		
Microbiology	Rapid Test	PCR	Influenza A	Negative	NP
			Influenza B	Negative	NP
			Bordatella pertussis	Negative	NP
			Bordatella para/ bronch	Negative	NP
			Bordatella holmesii	Negative	NP
			Gonorrhoea PCR	Negative	genital / urine
			Chlamydia PCR	Negative	genital / urine
			MRSA PCR	Negative	nasal
			CDT Toxin PCR	Negative	stool
			HSV Type II PCR	Negative	congenital
Microbiology	Rapid Test	EIA	Group A Strep	Negative	Throat
			Giardia Antigen	Negative	Stool
			Cryptosporidium Antigen	Negative	Stool
			CDT Toxin Screen EIA	Negative	Stool
			Ova and Parasite	Negative	Stool
			Legionella Antigen	Negative	Urine

Critical Tests by Testing Area: Summary

Testing Area:	Test
Hematology Critical Tests:	White Blood Cell Count (WBC)
	Hemoglobin (Hgb)
	Absolute Neutrophil Count
	Platelet Count
	Blood Parasites Screen (Malaria)

Testing Area:	Test
Coagulation Critical Tests:	PT/INR (International Normalized Ratio)
	PTT
	Fibrinogen

Testing Area:	Test
Blood Gases Critical Tests:	pH
	pCO2
	pO2
	Oxyhemoglobin
	Carboxyhemoglobin
	Methemoglobin
	O2 Content
	Total Hemoglobin

Testing Area:	Test
Chemistry Critical Test:	Ammonia
	BUN
	Calcium
	CO2
	Creatinine
	CSF Glucose
	CSF Xanthochromia
	Glucose
	Gestational Diabetes Screen Test (Glucose)
	Gestational Diabetes Tolerance Test (Glucose)
	Glucose Tolerance Test
	2 Hour Post-Prandial Glucose Test

Critical Tests by Testing Area Summary: (cont.)

Testing Area:	Test
Chemistry Critical Test: (cont.)	Lactic Acid
	Magnesium
	Phosphorous
	Potassium
	Sodium
	Free T4
	Total Bilirubin
Troponin I	

Testing Area:	Test
Therapeutic Drug Critical Tests:	Digoxin
	Dilantin
	Gentamicin
	Lithium
	Phenobarbital
	Tegretol
	Theophylline
	Tobramycin
	Valproic Acid
	Vancomycin

Testing Area:	Test
Toxicology Critical Tests:	Acetaminophen
	Alcohol (ETOH)
	Salicylate

Testing Area:	Test
Blood Bank Critical Tests:	Transfusion Reaction Evaluation
	Transfusion associated infection or disease
	Antibody Titer >3 increments or Score increase >10 between samples
	Positive DAT on a newborn

Critical Range
< 2.0 and >50.0

Critical Range
< 9.5 and > 22.5
< 6.9 and > 20.8
< 6.6 and > 19.9
< 50 and > 400

<15 years < 0.5

Critical Range
Any parasites seen.

Critical Range
> 5.0
> 100
< 75

Critical Range
> 150
> 300
> 100
> 100
> 100
< 5.8, > 13.3
< 6.3, > 13.3
< 10, > 40
> 10.0
> 10.0
> 2.4
> 30
> 10
< 25, > 250
< 35, > 250
< 45, > 250
< 54, > 400
< 54, > 400
> 4.0
> 2.0
< 1.0, > 4.4
> 60
< 1.0
< 2.5, > 6.5
< 2.5, > 6.5
< 2.5, > 6.0
> 40
< 120, > 160
> 20
> 12.0
> 15.0
> 6.00
> 6.00
> 6.00
≥ 0.04
> 150
> 40
< 25
Xanthochromic 8/25/2020

Reactive

Critical Range
< 54, > 400
< 54, > 400
< 54, > 400
< 54, > 400
< 54, > 400
< 54, > 400
< 54, > 400

Critical Range
< 54, > 400
< 54, > 400
< 54, > 400

Critical Range
< 50, > 400
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< 50, > 400

Critical Range
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Critical Range
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Critical Range
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< 54, > 400

Critical Range
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Positive

Chemistry Reference Ranges:**12/18/19 Reviewed Dr. D. Praprotnik**

Last Revised 05/13/2020 by S. Pavlock

DXC 700 AU Reference Ranges:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range	
A/G Ratio	Calculation			1.1 - 2.2			
Albumin	DXC 700 AU	Both	0 Day - 2 Days	2.8 - 4.2	g/dL		
		Male	3 Days - 18+ Years	4.2 - 5.5	g/dL		
		Female	3 Days - 18+ Years	3.7 - 5.3	g/dL		
Alcohol (ETOH)	DXC 700 AU			< 10	mg/dL	> 300	
Alkaline Phosphatase	DXC 700 AU	Both	0 Days - 2 Years	150 - 420	IU/L		
		Both	3 Years - 10 Years	100 - 320	IU/L		
		Male	10 Years - 18 Years	100 - 390	IU/L		
		Female	10 Years - 18 Years	100 - 320	IU/L		
		Both	18+ Years	34 - 104	IU/L		
ALT (SGPT)	DXC 700 AU	Both		7 - 52	IU/L		
Amylase	DXC 700 AU	Both		29 - 103	IU/L		
Anion Gap	DXC 700 AU	Both		7 - 17	mmol/L		
AST (SGOT)	DXC 700 AU	Both		13 - 39	IU/L		
BUN	DXC 700 AU	Both		7 - 25	mg/dL		
BUN/Creatinine Ratio	Calculation	Both		15 - 25	Ratio		
Calcium	DXC 700 AU	Both		8.6 - 10.3	mg/dL	< 5.8, > 13.3	
Cardiac Risk Factor	Calculation	Male		1/2 Average	3.43		
				Average	4.97		
				2X Average	9.55		
				3X Average	23.99		
		Female		1/2 Average	3.27		
				Average	4.44		
				2X Average	7.05		
3X Average	11.04						
Chloride	DXC 700 AU			98 - 107	mmol/L		
Cholesterol	DXC 700 AU	Both	0 - 17 Years	0 - 169 desirable	mg/dL		
				170-199 borderline high	mg/dL		
				>200 high	mg/dL		
		Both		18+ Years	0 - 199 desirable	mg/dL	
					200-239 borderline high	mg/dL	
>239 high	mg/dL						
CO2 (Carbon Dioxide)	DXC 700 AU	Both		21 - 31	mmol/L	< 10, > 40	
CPK	DXC 700 AU	Both		30 - 223	IU/L		
Creatinine	DXC 700 AU	Male		0.7 - 1.3	mg/dl	> 10.0	
		Female		0.6 - 1.2	mg/dl	> 10.0	
Direct Bilirubin	DXC 700 AU	Both	0 Days - 5 Days	0.03 - 0.6	mg/dL		
			6 - Days - 17 Years	0.03 - 0.20	mg/dL		
			18+ years	0.03 - 0.18	mg/dL		

Chemistry Reference Ranges (cont.):

DXC 700 AU Reference Ranges (cont):

Glomerular Filtration Rate	Calculation	Both		> or = 60 GFR	mL/min/ 1.73 M ²	
				30 - 59 Moderate decrease in GFR		
				15 - 29 Severe decrease in GFR		
				< 15 Kidney failure or Dialysis		
			Chronic kidney disease is defined as either kidney damage or GFR < 60 mL/min/1.73 m ² for > or = 3 months. Kidney damage is defined as pathologic abnormalities or markers of damage including abnormalities in blood or urine tests or imaging studies. This GFR is NOT used for medication dosing.			
Glucose	DXC 700 AU		0 Hrs - 4 Hrs	41 - 60	mg/dL	< 25, > 250
			4 Hrs - 1 Day	46 - 60	mg/dl	< 35, > 250
			1 Day - 2 Months	51 - 90	mg/dl	< 45, > 250
			2 Months - 16 Yrs	60 - 99	mg/dL	< 54, > 400
			16 year +	70 - 99	mg/dl	< 54, > 400
HDL (Direct)	DXC 700 AU	Both	0 Years - 17 Years	> 45	mg/dl	
		Male	18+ Years	> 40	mg/dl	
		Female	18+ Years	> 50	mg/dl	
Indirect Bilirubin	Calculation			0.0 - 1.0	mg/dL	
Iron	DXC 700 AU	Both	0 Days - 5 Days	100 - 250	ug/dL	
		Both	6 Days - 2 Years	40 - 100	ug/dL	
		Both	2 Years - 17 Years	50 - 120	ug/dL	
		Both	18+ Years	50 - 212	ug/dl	
Lactic Acid	DXC 700 AU	Both		0.5 - 2.2	mmol/L	> 4.0
Lipase	DXC 700 AU	Both		11 - 82	IU/L	
LDH	DXC 700 AU	Both		140- 271	IU/L	
LDL	Calculation	Both	0 - 17 years	0 - 109 desirable	mg/dL	
				110 - 129 borderline high	mg/dL	
				> = 130 high	mg/dL	
			18 + years	0 - 99 optimal	mg/dL	
				100 - 129 near optimal	mg/dL	
				130 - 159 borderline high	mg/dL	
				160 - 189 high	mg/dL	
				> = 190 very high	mg/dL	
Magnesium	DXC 700 AU			1.7 - 2.4	mg/dL	< 1.0, > 4.4
Phosphorus	DXC 700 AU	Both	0 - 9 Days	4.5 - 9.0	mg/dL	< 1.0
			10 Days - 2 Years	4.0 - 6.5	mg/dL	
			3 Years - 10 Years	3.2 - 5.8	mg/dL	
			11 Years - 15 Years	3.3 - 5.4	mg/dL	
			16+ Years	2.5 - 4.6	mg/dL	
Potassium	DXC 700 AU	Both		3.4 - 4.8	mmol/L	< 2.5, > 6.5
Rheumatoid Factor	DXC 700 AU	Both		0 - 14	IU/mL	
Sodium	DXC 700 AU	Both		136 - 145	mmol/L	< 120, > 160
Total Bilirubin	DXC 700 AU		0 Day - 1 Day	0.3 - 8.0	mg/dL	> 12.0
			1 Day - 2 Days	0.3 - 11.5	mg/dL	
			3 Days - 5 Days	0.3 - 12.0	mg/dL	> 15.0
			5+ Days	0.3 - 1.0	mg/dL	

Chemistry Reference Ranges (cont.):**DXC 700 AU Reference Ranges (cont):**

Total Protein	DXC 700 AU	Both	0 Day - 15 days	4.4 - 7.6	g/dL
			16 Days - 1 Year	5.1 - 7.3	g/dL
			1 Year - 2 Years	5.6 - 7.5	g/dL
			3 Years - 16 Years	6.0 - 8.0	g/dL
			17+ Years	6.0 - 8.3	g/dL
Triglycerides	DXC 700 AU	Both	0 - 17 Years	0 - 89 normal	mg/dL
				90 - 129 borderline high	mg/dL
				> = 130 high	mg/dL
			18+ Years	0 - 149 normal	mg/dL
				150-199 borderline high	mg/dL
				200-499 high	mg/dL
Uric Acid	DXC 700 AU	Male	4.4 - 7.6	mg/dl	
		Female	2.3 - 6.6	mg/dl	
VLDL	Calculation		8 - 39	mg/dL	

Chemistry Cerebrospinal Fluid Tests

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Glucose, Spinal Fluid	DXC 700 AU	Both		40 - 70	mg/dL	< 25
Protein, Spinal Fluid	DXC 700 AU	Both	0 Days - 29 Days	15 - 130	mg/dL	
			30+ Days	15 - 45	mg/dL	
CSF Xanthochromia	Visual	Both		Clear		Xanthochromic

Chemistry Urine Tests:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Creatinine, 24 Hour, Urine	DXC 700 AU	Male		800 - 2000	mg/24hr	
		Female		600 - 1800	mg/24hr	
Creatinine Clearance, 24 Hour, Urine	DXC 700 AU	Male		74 - 140	mL/min	
		Female		74 - 130	mL/min	
Protein, 24 Hour, Urine	DXC 700 AU	Both		50 - 80	mg/24hr	
Protein, Random, Urine		Both	Random	< 10	mg/dL	

Chemistry Reference Ranges: (cont.)**Glucose Tolerance Test (75 grams of Glucola)**

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Fasting Glucose	DXC 700 AU			70 - 99	mg/dL	< 54, > 400
1 Hour Glucose	DXC 700 AU			70 - 199	mg/dL	< 54, > 400
2 Hour Glucose	DXC 700 AU			70 - 139	mg/dL	< 54, > 400
3 Hour Glucose	DXC 700 AU			70 - 99	mg/dL	< 54, > 400
4 Hour Glucose	DXC 700 AU			70 - 99	mg/dL	< 54, > 400
5 Hour Glucose	DXC 700 AU			70 - 99	mg/dL	< 54, > 400
6 Hour Glucose	DXC 700 AU			70 - 99	mg/dL	< 54, > 400

Gestational Glucose Tolerance, 2 Hour (ADA Recommendations) 75 g Glucola

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Fasting Glucose	DXC 700 AU			70 - 91	mg/dL	< 54, > 400
1 Hour Glucose	DXC 700 AU			70 - 179	mg/dL	< 54, > 400
2 Hour Glucose	DXC 700 AU			70 - 152	mg/dL	< 54, > 400

Gestational Glucose Tolerance, 3 Hour (ACOG Recommendations) 100 g Glucola

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Fasting Glucose	DXC 700 AU			70 - 94	mg/dL	< 50, > 400
1 Hour Glucose	DXC 700 AU			70 - 179	mg/dL	< 50, > 400
2 Hour Glucose	DXC 700 AU			70 - 154	mg/dL	< 50, > 400
3 Hour Glucose	DXC 700 AU			70 - 139	mg/dL	< 50, > 400

Gestational Diabetes Screen (ACOG Recommendations) 50 g Glucola

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
1 Hour Glucose	DXC 700 AU			70 - 134	mg/dL	< 54, > 400

2 Hour Post-Prandial Glucose Test:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
2 Hour Glucose	DXC 700 AU			70 - 139	mg/dL	< 54, > 400

Insulin Resistance with Glucose - 2 Hour

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Fasting Glucose	DXC 700 AU			70 - 99	mg/dL	< 54, > 400
1 Hour Glucose	DXC 700 AU			70 - 199	mg/dL	< 54, > 400
2 Hour Glucose	DXC 700 AU			70 - 139	mg/dL	< 54, > 400
Fasting Insulin	DXI 600			1.9 - 23.0	uIU/mL	
1 Hour Insulin	DXI 600			No Ref Range	uIU/mL	
2 Hour Insulin	DXI 600			No Ref Range	uIU/mL	

Chemistry Urine Drug Screening Tests:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Amphetamines (AMPH)	DXC 700 AU			Negative = < 1000	ng/mL	
Barbiturates (BARB)	DXC 700 AU			Negative = < 200	ng/mL	
Benzodiazepine (BENZ)	DXC 700 AU			Negative = < 200	ng/mL	
Cocaine Metabolites (COCM)	DXC 700 AU			Negative = < 300	ng/mL	
Methadone (METD)	DXC 700 AU			Negative = < 300	ng/mL	
Oxycodone (OXY)	DXC 700 AU			Negative = < 100	ng/mL	
Opiate (OP)	DXC 700 AU			Negative = < 300	ng/mL	
Phencyclidine (PCP)	DXC 700 AU			Negative = < 25	ng/mL	
Buprenorphine (BUP)	Med-Tox			Negative = < 10	ng/mL	
Cannabinoid (TCH50)	DXC 700 AU			Negative = < 50	ng/mL	

Coagulation Tests:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Fibrinogen	Sysmex CA660			243.70 - 487.63	mg/dL	< 75
PT	Sysmex CA660			9.5-12.0	seconds	
INR	Calculation			0.9 - 1.1	Ratio	> 5.00
PTT	Sysmex CA660			21.0 - 29.0	seconds	> 100

Serology Tests:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
ASO Titer	Manual			0 - 199	Units	
HIV	Manual			Negative		
Influenza A/B	Manual			Negative		
Monospot Test	Manual			Negative		
Occult Blood, Fecal	Manual			Negative		
Occult Blood, Gastric	Manual			Negative		
RSV	Manual			Negative for RSV		
RPR	Manual			Non-Reactive		Reactive
Rotavirus	Manual			No antigen detected.		
Serum Pregnancy	Manual			Negative		
Urine Pregnancy	Manual			Negative		

Urinalysis Tests:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
Bacteria	Clinitek Status +			Absent		
Bilirubin	Clinitek Status +			Negative		Large
Glucose	Clinitek Status +			Negative	mg/dL	
Ketones	Clinitek Status +			Negative		
Leukocyte esterase	Clinitek Status +			Negative		
Nitrates	Clinitek Status +			Negative		
pH	Clinitek Status +			4.6 - 8.0		
Proteins	Clinitek Status +			Negative	mg/dL	
RBC/Hgb	Clinitek Status +			Negative		
Specific Gravity	Clinitek Status +			1.001 - 1.035		

Hematology Tests:

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
ESR	ESR Auto Plus	Male	< 50 years	0 - 20	mm	
			> 50 years	0 - 23		
		Female	< 50 years	0 - 23		
			> 50 years	0 - 30		
Semen, Post Vasectomy	Manual	Male		No sperm seen.		
Platelet Count	DXH600 DXH800		0-3 Days	150 - 350	x10 ³ / uL	< 50, > 999
			4 Days - 1 Month	150 - 350		
			1-2 Months	150 - 350		
			2-6 Months	150 - 350		
			6 Months - 2 Years	150 - 350		
			2-6 Years	150 - 350		
		6-12 Years	150 - 350			
		Male	12-18 Years	150 - 350		
		Female	12-18 Years	150 - 350		
		Male	> or = 18 Years	150 - 350		
Female	> or = 18 Years	150 - 350				
RDW-cv	DXH600 DXH800		0-6 months	14.9 - 18.7		
			> 6 months	11.6 - 14.8		
MCH	DXH600 DXH800		0-1 Day	30 - 37	pg	
			1-3 Days	30 - 37		
			4 Days - 1 Month	30 - 37		
			1-6 Months	29 - 36		
			6 Months - 2 Years	24 - 30		
			2-6 Years	25 - 31		
			6-18 Years	25 - 34		
			Male	> or = 18 Years		
		Female	> or = 18 Years	27 - 35		
		WBC	DXH600 DXH800			
1-3 Days	9.4 - 34.0					
4 Days - 1 Month	5.0 - 20.0					
1 Month - 6 Months	4.0 - 19.5					
6 Months - 2 Years	6.0 - 17.0					
2-6 Years	5.0 - 15.5					
6-18 Years	4.5 - 13.5					
Male	> or = 18 Years			4.5 - 11.0		
Female	> or = 18 Years			4.5 - 11.0		
Automated Differential	DXH600 DXH800	Male	Neut%	42.1 - 74.5	%	
			Lymph%	13.9 - 44.1		
			Mono%	4.7 - 13.9		
			Eos%	0.0 - 6.1		
			Baso%	0.0 - 1.2		
		Female	Neut%	44.9 - 77.9		
			Lymph%	12.4 - 42.8		
			Mono%	3.7 - 11.9		
			Eos%	0.0 - 5.4		
			Baso%	0.0 - 1.5		

Hematology Tests (cont.):

Total Leukocytes	DXH600 DXH800		0 Day	9 - 38	x 10 ³ /uL	
			1 Day	9.4 - 34		
			1 Week	5 - 21		
			2 Week	5 - 20		
			1 Month	5 - 19.5		
			6 Month	6 - 17.5		
			1 Year	6 - 17.5		
			2 Year	6 - 17		
			4 Year	5.5 - 15.5		
			6 Year	5 - 14.5		
			8 Year	4.5 - 13.5		
			10 Year	4.5 - 13.5		
			16 Year	4.5 - 13.0		
	21 Year	4.5 - 11.0				
Neutrophil	DXH600 DXH800			x 10 ³ /uL		%
			0 Day	6.0 - 28.0		68 (54.4 - 81.6)
			24 Hour	5.0 - 21.0		61 (48.8 - 73.2)
			1 Week	1.5 - 10		45 (36 - 54)
			2 Week	1 - 9.5		40 (32 - 48)
			1 Month	1 - 8.5		35 (28 - 42)
			6 Month	1 - 8.5		32 (25.6 - 38.4)
			1 Year	1.5 - 8.5		31 (24.8 - 37.2)
			2 Year	1.5 - 8.5		33 (26.4 - 39.6)
			4 Year	1.5 - 8.5		42 (33.6 - 50.4)
			6 Year	1.5 - 8		51 (40.8 - 61.2)
			8 Year	1.5 - 8		53 (42.4 - 63.6)
			10 Year	1.5 - 8.5		54 (43.2 - 64.8)
	16 Year	1.8 - 8		57 (45.6 - 68.4)		
	21 Year	1.8 - 7.7		59 (47.2 - 70.8)		
Lymphocyte	DXH600 DXH800			x 10 ³ /uL		%
			0 Day	2 - 11		24 (19.2 - 28.8)
			24 Hour	2 - 11.5		31 (24.8 - 37.2)
			1 Week	2 - 17		41 (32.8 - 49.2)
			2 Week	2 - 17		48 (38.4 - 57.6)
			1 Month	2.5 - 16.5		56 (44.8 - 67.2)
			6 Month	4 - 13.5		61 (48.8 - 73.2)
			1 Year	4 - 10.5		61 (48.8 - 73.2)
			2 Year	3 - 9.5		59 (47.2 - 70.8)
			4 Year	2 - 8		50 (40 - 60)
			6 Year	1.5 - 7		42 (33.6 - 50.4)
			8 Year	1.5 - 6.8		39 (31.2 - 46.8)
			10 Year	1.5 - 6.5		38 (30.4 - 45.6)
	16 Year	1.2 - 5.2		35 (28 - 42)		
	21 Year	1 - 4.8		34 (27.2 - 40.8)		

Hematology Tests (cont.):

Monocyte	DXH600 DXH800		Mean	x 10 ³ /uL		
			0 Day			1.2
			24 Hour			1.1
			1 Week			1.1
			2 Week			1
			1 Month			0.7
			6 Month			0.6
			1 Year			0.6
			2 Year			0.5
			4 Year			0.5
			6 Year			0.4
			8 Year			0.4
			10 Year			0.4
16 Year	0.4					
21 Year	0.3					
Absolute Neutrophil			NEUT#		<15 years < 0.5	
RBC	DXH600 DXH800		0-1 Day	3.90 - 5.90	x10 ⁶ / uL	
			1-3 Days	3.90 - 5.90		
			4 Days - 1 Month	3.90 - 5.90		
			1 Month - 6 Months	3.30 - 5.30		
			6 Months - 2 Years	3.90 - 4.80		
			2-6 Years	3.70 - 4.90		
			6-18 Years	3.80 - 5.60		
			Male > or = 18 Years	4.30 - 5.80		
			Female > or = 18 Years	3.80 - 5.20		
Hemoglobin (Hgb)	DXH600 DXH800		0 - 3 Days	14.5 - 22.5	g/dL	< 9.5, > 22.5
			4 Days - 1 Month	13.4 - 19.8		
			1 Month - 2 Months	10.7 - 17.1		
			2-6 Months	9.4 - 13.0		
			6 Months - 2 Years	10.5 - 13.5		
			2-6 Years	11.5 - 13.5		
			6-12 Years	11.5 - 15.5		
			Male 12-18 Years	13.0 - 16.0		
			Female 12-18 Years	12.0 - 16.0		
			Male 18 Years and older	13.5 - 17.5		
Female 18 Years and older	12.0 - 16.0					
Hematocrit (Hct)	DXH600 DXH800		0-3 Days	45 - 67	%	
			4 Days - 1 Month	41 - 65		
			1-2 Months	33 - 55		
			2-6 Months	28 - 42		
			6 Months - 2 Years	33 - 39		
			2-6 Years	34 - 40		
			6-12 Years	35 - 45		
			Male 12-18 Years	36 - 50		
			Female 12-18 Years	37 - 45		
			Male 18 Years and older	41 - 53		
			Female 18 Years and older	36 - 46		

Hematology Tests (cont.):

MCHC	DXH600 DXH800		0-3 Days	29.0 - 37.0	g/dL	
			4 Days - 1 Month	28.1 - 34.7		
			1-2 Months	28.1 - 35.5		
			2-6 Months	28.3 - 35.3		
			6 Months - 2 Years	30.0 - 36.0		
			2-6 Years	31.0 - 37.0		
			6-12 Years	31.0 - 37.0		
			Male 12-18 Years	31.0 - 37.0		
			Female 12-18 Years	31.0 - 37.0		
			Male 18 Years and older	31.0 - 37.0		
Female 18 Years and older	31.0 - 37.0					
MCV	HMX DXH600		0-3 Days	95 - 121	fL	
			4 Days - 1 Month	88 - 122		
			1-2 Months	91 - 111		
			2-6 Months	84 - 106		
			6 Months - 2 Years	70 - 86		
			2-6 Years	75 - 87		
			6-12 Years	77 - 95		
			Male 12-18 Years	78 - 98		
			Female 12-18 Years	78 - 90		
			Male 18 Years and older	80 - 100		
Female 18 Years and older	80 - 100					

Critical Tests:

Testing Area:	Test
Blood Bank Critical Tests:	Transfusion Reaction Evaluation
	Transfusion associated infection or disease
	Positive DAT on a newborn

Critical Tests:

Testing Area:	Test type		Test	Reference Range	Source	Critical Range		
Microbiology	Culture		Blood	Negative	Blood	Positive		
			CSF	Negative	CSF	Positive		
			Acid Fast Bacillus	Negative	All	Positive		
			Group A Strep Backup	Negative	Throat	Positive		
			Group B Strep	Negative	Nursery only	Positive		
			Gonorrhoea	Negative	All	Positive		
			HSV Type II	Negative	congenital	Positive		
			MDRO	Negative	All	Positive		
			CRE	Negative	All	Positive		
			ESBL	Negative	All	Positive		
			VRE	Negative	All	Positive		
			MRSA	Negative	All	Positive		
		Microbiology	Rapid Test	PCR	Influenza A	Negative	NP	Positive
					Influenza B	Negative	NP	Positive
					Bordatella pertussis	Negative	NP	Positive
Bordatella para/ bronch	Negative				NP	Positive		
Bordatella holmesii	Negative				NP	Positive		
Gonorrhoea PCR	Negative				genital / urine	Positive		
Chlamydia PCR	Negative				genital / urine	Positive		
MRSA PCR	Negative				nasal	Positive		
CDT Toxin PCR	Negative				stool	Positive		
HSV Type II PCR	Negative				congenital	Positive		
Microbiology	Rapid Test	EIA	Group A Strep	Negative	Throat	Positive		
			Exposure HIV 1/2	Negative	Blood	Positive		
			Giardia Antigen	Negative	Stool	Positive		
			Cryptosporidium Antigen	Negative	Stool	Positive		
			CDT Toxin Screen EIA	Negative	Stool	Positive		
			Ova and Parasite	Negative	Stool	Positive		
			Legionella Antigen	Negative	Urine	Positive		

Last Reviewed: (Revised 08.18.2020)

Chemistry Reference Ranges:**Au 480 Reference Ranges:**

Test	Method	Sex	Criteria	Reference Range	Units	Critical Range
A/G Ratio	Calculation	Both		1.1 - 2.2	Ratio	
Albumin	AU 480	Both		3.5 - 5.7	gm/dL	
Alkaline Phosphatase	AU 480	Both		34 - 104	IU/L	
ALT (SGPT)	AU 481	Both		7 - 52	IU/L	
Anion Gap	Calculation	Both		7 - 17	mmol/L	
AST (SGOT)	AU480	Both		13 - 39	IU/L	
BUN	AU480	Both		7 - 25	mg/dL	
BUN/Creatinine Ratio	Calculation	Both		15 - 25	Ratio	
Calcium	AU480	Both	> 2 days	8.6 - 10.2	mg/dl	< 6.3, > 13.3
Chloride	AU480	Both		98 - 107	mmol/L	
CO2 (Carbon Dioxide)	AU480	Both		21 - 31	mmol/L	< 10, > 40
Creatinine	AU480	Both		0.6 - 1.3	mg/dl	> 10.0
Direct Bilirubin	AU480	Both		0.1 - 0.5	mg/dL	
Glomerular Filtration Rate	Calculation	Both		> or = 60 GFR 30 - 59 Moderate decrease in GFR 15 - 29 Severe decrease in GFR < 15 Kidney failure or Dialysis	ml/min./ 1.73 M ²	
Chronic kidney disease is defined as either kidney damage or GFR < 60 mL/min/1.73 m ² for > or = 3 months. Kidney damage is defined as pathologic abnormalities or markers of damage including abnormalities in blood or urine tests or imaging studies. This GFR is NOT used for medication dosing.						
Glucose	AU480		0 Hrs - 4 Hrs	41 - 60	mg/dL	< 25, > 250
			4 Hrs - 1 Day	46 - 60	mg/dl	< 35, > 250
			1 Day - 2 Months	60 - 99	mg/dl	< 45, > 250
			2 Months - 16 Yrs	60 - 99	mg/dL	< 54, > 400
			16 year +	70 - 99	mg/dl	< 54, > 400
Indirect Bilirubin	Calculation	Both		0.0 - 1.0	mg/dL	
LDH	AU480	Both		140 - 271	IU/L	
Magnesium	AU480	Both		1.7 - 2.4	mg/dL	< 1.0, > 4.4
Phosphorus	AU480	Both		2.5 - 5.0	mg/dL	< 1.0
Potassium	AU480	Both		3.5 - 5.1	mmol/L	< 2.5, > 6.0
Sodium	AU480	Both	2+ Years	136 - 145	mmol/L	< 120, > 160
Total Bilirubin	AU480	Both		0.3 - 1.0	mg/dL	> 15.0
Total Protein	AU480	Both		6.4 - 8.9	gm/dl	

Evaluation of Reference Ranges
October 2014

Reference ranges for BVHS were evaluated using current information from the following sources:

The Harriet Lane Handbook, A manual for Pediatric House Officers, 20th Edition, John Hopkins Children's Center, 2015

Ohio State University Wexler Medical Center

Cleveland Clinic