



HealthEast MEDICAL LABORATORY

REFERENCE RANGES

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Chemistry Reference Ranges I2 – I19
Hematology Normal Ranges I20-I25
Urinalysis Normal Ranges I26

**HealthEast Medical Laboratory**

Chemistry and Serology Reference Ranges

July 2019

Acetaminophen (Tylenol)

Reference Range	10.0-20.0 ug/mL
Critical	>120.0 ug/mL

AFP (Alpha-Fetoprotein) Tumor Marker

Reference Range	<=8.5 ug/mL
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Albumin

Reference Range (Adult)	3.5-5.0 g/dL
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Albumin/Globulin Ratio

Reference Range (Adult)	1.0-2.2 g/dL
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Alcohol Ethyl, Blood

Reference Range	None detected
Abnormality - Abnormal	>=10 mg/dL

Alkaline Phosphatase

Age 0 up to 6 Years	Reference Range	68-303 U/L
6 Years up to 11 Years	Reference Range	50-477 U/L
11 Years up to 19 Years	Reference Range	50-364 U/L
19 Years and up	Reference Range	45-120 U/L

Allergy Testing (Allergy Panels performed at HML Laboratories)

CKR	Coackroach IgE	<0.35 kU/L
FOO	IGE ALG Panel Food	<0.35 kU/L
MW7	IGE ALG Panel MW7	<0.35 kU/L
MIN	IGE ALG Panel, Mini	<0.35 kU/L
REG	IGE ALG Panel Reg.	<0.35 kU/L
NUT	IGE Allergen Panel Nut	<0.35 kU/L
ALD	IGE Almond	<0.35 kU/L
ATT	IGE Altern. Alternata	<0.35 kU/L
ASF	IGE Aspe. Fumigatus	<0.35 kU/L
BOX	IGE Box Elder/Mpl	<0.35 kU/L
BZN	IGE Brazil Nut	<0.35 kU/L
CRO	IGE Carrot.....	<0.35 kU/L
CSW	IGE Cashew.....	<0.35 kU/L
CTE	IGE Cat Dander	<0.35 kU/L
CMT	IGE Cedar Mtn Juniper	<0.35 kU/L
CSN	IGE Chestnut (Sweet)	<0.35 kU/L
CKN	IGE Chicken.....	<0.35 kU/L
R01	IGE Childhood March Panel.....	<0.35 kU/L
CHB	IGE Cladospor. HB.	<0.35 kU/L
CM	IGE Clam	<0.35 kU/L
ORD	IGE Cocksfoot Orch Grass.....	<0.35 kU/L
COD	IGE Codfish	<0.35 kU/L
CSB	IGE Common Silver Birch	<0.35 kU/L
CON	IGE Corn.....	<0.35 kU/L
COT	IGE Cottonwood Tree	<0.35 kU/L



Allergy Testing (Allergy Panels performed at HML Laboratories cont.)

DF	IGE D. Farinae Mite	<0.35 kU/L
DP	IGE D. Pteronyssinus.....	<0.35 kU/L
DAN	IGE Dandelion.....	<0.35 kU/L
DOG	IGE Dog Dander	<0.35 kU/L
EGW	IGE Egg White	<0.35 kU/L
EGY	IGE Egg Yolk	<0.35 kU/L
ELM	IGE Elm Tree	<0.35 kU/L
EPL	IGE Engl. Plantain Ribwort.....	<0.35 kU/L
HAZ	IGE Hazel Nut	<0.35 kU/L
HDG	IGE House Dust Greer	<0.35 kU/L
HDS	IGE House Dust H-S.....	<0.35 kU/L
LTX	IGE Latex.....	<0.35 kU/L
LBS	IGE Lobster.....	<0.35 kU/L
MFS	IGE Meadow Fescue.....	<0.35 kU/L
JKB	IGE Meadow KB Grass	<0.35 kU/L
MCW	IGE Milk, Cow	<0.35 kU/L
OAK	IGE Oak Tree.....	<0.35 kU/L
OAT	IGE Oat.....	<0.35 kU/L
OLV	IGE Olive Tree	<0.35 kU/L
PNT	IGE Peanut	<0.35 kU/L
PCE	IGE Pecan Nut.....	<0.35 kU/L
IPE	IGE Pencillium Notatum	<0.35 kU/L
PSO	IGE Pistachio Nut.....	<0.35 kU/L
RGS	IGE Ragweed Common	<0.35 kU/L
RGG	IGE Ragweed Giant	<0.35 kU/L
RTP	IGE Redtop/Bentgrs.....	<0.35 kU/L
R02	IGE Resp Disease Panel	<0.35 kU/L
RIC	IGE Rice	<0.35 kU/L
RMS	IGE Rough Marshelder	<0.35 kU/L
RYE	IGE Rye Grass.....	<0.35 kU/L
SAM	IGE Salmon	<0.35 kU/L
RTH	IGE Saltwort R. Thistle.....	<0.35 kU/L
SCP	IGE Scallop.....	<0.35 kU/L
F01	IGE Seafood Panel	<0.35 kU/L
SHR	IGE Shrimp	<0.35 kU/L
SOY	IGE Soybean	<0.35 kU/L
SEB	IGE Staph Enterotoxin B	<0.35 kU/L
TIM	IGE Timothy Grass	<0.35 kU/L
TOM	IGE Tomato	<0.35 kU/L
TNA	IGE Tuna	<0.35 kU/L
WNT	IGE Walnut (Food)	<0.35 kU/L
WHT	IGE Wheat (Grain)	<0.35 kU/L
WTA	IGE White Ash Tree	<0.35 kU/L
LT1	LTD-Childhood March Panel.....	<0.35 kU/L
LTF	LTD-IGE Alb Panel Food	<0.35 kU/L
LT2	LTD-IGE Resp Disease.....	<0.35 kU/L



Reference Range Interpretation Information:
ImmunoCAP Specific IgE Blood Test Quantitative Scoring

IgE kU/L	Level
<0.35	absent/undetectable
0.35-0.69	low
0.70-3.49	moderate
3.50-17.49	high
>=17.50	very high

*Please note, a high or low specific IgE level may not necessarily correlate to the degree Of symptom severity, as each person's symptomatic threshold varies.

ALT (Alanine Aminotransferase) (SGPT)	Reference Range	0-45 U/L
AST (Aspartate Aminotransferase) (SGOT)	Reference Range	0-40 U/L
Ammonia	Reference Range	11-35 umol/L
Amylase	Reference Range	5-120 U/L
Amylase, 2Hr Urine	Reference Range	5-38 U/2 hr
Anion Gap = Na - (CO₂ + CL)	Reference Range	5-18 mmol/L
Antinuclear Antibody Cascade (ANE)	Reference Range	<=2.9 U
Antinuclear Antibody Screen (ANB)	Reference Range	<=2.9 U
<u>Antibodies to Extractable Nuclear Antigens (ENA) Profile (AEN)</u>		
SS-A/Ro Auto-antibodies	Reference Range	<20 EU
SS-B Autoantibodies	Reference Range	<20 EU
Sm (Smith) Autoantibodies	Reference Range	<20 EU
Szm/RNP Autoantibodies	Reference Range	<20 EU
Sc-70 Autoantibodies	Reference Range	<20 EU
Jo-1 Autoantibodies	Reference Range	<20 EU



Anti-TPO (Thyroid Peroxidase Antibody)

Reference Range 0.0-5.6 IU/mL

Beta hCG (Adult, Nonpregnant)

Reference Range 0-4 mIU/mL

Equivocal results for early pregnancy 5-24 mIU/mL

Weeks post LMP	Approximate hCG Range (mIU/mL)
3-4	9 - 130
4-5	75 - 2600
5-6	850 - 20,800
6-7	4,000 - 100,200
7-12	11,500 - 289,000
12-16	18,300 - 137,000
16-29	1,400 - 53,000
29-41	940 - 60,000

(2nd trimester)
(3rd trimester)

Beta-Hydroxybutyrate (Replaces Serum Ketone)

Reference Range <=0.3 mmol/L

Bicarbonate, Venous, Calculated (HCO₃)

Reference Range 24.0-30.0 mmol/L

Bilirubin, Total

Age 0 up to 24 Hours	Reference Range	0.0-6.0 mg/dL
	Critical	>12.0 mg/dL
24 Hours up to 2 Days	Reference Range	0.0-7.0 mg/dL
	Critical	>15.0 mg/dL
2 Days up to 5 Days	Reference Range	0.0-7.0 mg/dL
5 Days up to 1 Month	Reference Range	0.0-6.0 mg/dL
1 Month up to 2 Months	Reference Range	0.0-7.0 mg/dL
2 Months and up	Reference Range	0.0-6.0 mg/dL
	Critical	>18.0 mg/dL

Bilirubin, Direct

Reference Range <=0.5 mg/dL

Bilirubin, Indirect

Up to 1 Day	Reference Range	0.0-6.0 mg/dL
1 Day up to 2 Days	Reference Range	0.0-7.0 mg/dL
2 Days up to 5 Days	Reference Range	0.0-7.0 mg/dL
5 Days up to 1 Months	Reference Range	0.0-6.0 mg/dL
1 Months up to 2 Months	Reference Range	0.0-4.0 mg/dL
2 Months and up	Reference Range	0.0-1.0 mg/dL

Bilirubin, Cord

Reference Range 0.0-5.0 mg/dL



BNP (B-Type Natriuretic Peptide) REFERENCE VALUES:

	Males:	Females:		Males:	Females:
<=45 years:	< 36 pg/mL	< 65 pg/mL	64 years:	< 58 pg/mL	< 104 pg/mL
46 years:	< 37 pg/mL	< 67 pg/mL	65 years:	< 60 pg/mL	< 107 pg/mL
47 years:	< 38 pg/mL	< 68 pg/mL	66 years:	< 61 pg/mL	< 110 pg/mL
48 years:	< 39 pg/mL	< 70 pg/mL	67 years:	< 63 pg/mL	< 113 pg/mL
49 years:	< 40 pg/mL	< 72 pg/mL	68 years:	< 65 pg/mL	< 115 pg/mL
50 years:	< 41 pg/mL	< 74 pg/mL	69 years:	< 66 pg/mL	< 118 pg/mL
51 years:	< 42 pg/mL	< 75 pg/mL	70 years:	< 68 pg/mL	< 121 pg/mL
52 years:	< 43 pg/mL	< 77 pg/mL	71 years:	< 70 pg/mL	< 124 pg/mL
53 years:	< 44 pg/mL	< 79 pg/mL	72 years:	< 71 pg/mL	< 128 pg/mL
54 years:	< 46 pg/mL	< 81 pg/mL	73 years:	< 73 pg/mL	< 131 pg/mL
55 years:	< 47 pg/mL	< 83 pg/mL	74 years:	< 75 pg/mL	< 134 pg/mL
56 years:	< 48 pg/mL	< 85 pg/mL	75 years:	< 77 pg/mL	< 138 pg/mL
57 years:	< 49 pg/mL	< 88 pg/mL	76 years:	< 79 pg/mL	< 141 pg/mL
58 years:	< 50 pg/mL	< 90 pg/mL	77 years:	< 81 pg/mL	< 145 pg/mL
59 years:	< 52 pg/mL	< 92 pg/mL	78 years:	< 83 pg/mL	< 148 pg/mL
60 years:	< 53 pg/mL	< 94 pg/mL	79 years:	< 85 pg/mL	< 152 pg/mL
61 years:	< 54 pg/mL	< 97 pg/mL	80 years:	< 87 pg/mL	< 156 pg/mL
62 years:	< 56 pg/mL	< 99 pg/mL	81 years:	< 89 pg/mL	< 160 pg/mL
63 years:	< 57 pg/mL	< 102 pg/mL	82 years:	< 92 pg/mL	< 164 pg/mL
			>=83 years:	< 94 pg/mL	< 168 pg/mL

BUN (Blood Urea Nitrogen)

Up to 2 Months	Reference Range	4-15 mg/dL
2 Months up to 2 Years	Reference Range	5-15 mg/dL
2 Years up to 18 Years	Reference Range	9-18 mg/dL
18 Years up to 70 Years	Reference Range	8-22 mg/dL
>70 Years	Reference Range	8-28 mg/dL

Blood Gases, Arterial

pH

Reference Range	7.37-7.44
Critical	<7.25 or >7.55

pCO2

Reference Range	35-45 mm Hg
Critical	<20 or >70 mm Hg

pO2

Age up to 66 Years	Reference Range	80-90 mm Hg
66 Years and up	Reference Range	75-85 mm Hg
	Critical	<50 mm Hg

Bicarbonate, Calc

Reference Range	23.0-29.0 mmol/L
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Oxyhemoglobin

Age up to 66 Years	Reference Range	96.0-97.0 %
66 Years and up	Reference Range	95.0-96.0 %
	Critical	<85.0



Blood Gases, Arterial (cont.)

O2 Saturation

Age up to 66 Years	Reference Range	96.0-97.0 %
66 Years and up	Reference Range	95.0-96.0 %
	Critical	<85.0 %

Carboxyhemoglobin

Reference Range	0.0-1.5 % sat
Critical	>10.0 % sat

Methemoglobin

Reference Range	0.0-2.0 % Sat
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Blood Gases, Venous

pH

Reference Range	7.35-7.45
Critical	<7.25 or >7.55

pCO2

Reference Range	35-50 mm Hg
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pO2

Reference Range	25-47 mm Hg
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HCO3

Reference Range	24.0-30.0 mmol/L
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O2 Hb

Reference Range	70.0-75.0 %
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O2 Saturation

Reference Range	70.0-75.0 %
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Buprenorphine, Random Urine (instrument)

Reference Range	0.00-5.00 ng/mL
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CA 125 (Cancer Antigen 125)

Reference Range	0.0-35.0 U/mL
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Calcium, Blood

Age up to 6 Years	Reference Range	9.8-10.9 mg/dL
6 Years up to 11 Years	Reference Range	9.0-10.4 mg/dL
11 Years up to 16 Years	Reference Range	8.9-10.5 mg/dL
16 Years and up	Reference Range	8.5-10.5 mg/dL
	Critical	<6.0 or >12.0 mg/dL

Calcium, 24Hr Urine

Female	Reference Range	20-275 mg/24hr
Male	Reference Range	25-300 mg/24hr



Calcium, Ionized

Calcium, Ionized @ pH 7.4

Reference Range	1.11-1.30 mmol/L
Critical	<0.82 or >1.55 mmol/L

pH

Reference Range	7.35-7.45
Critical	<7.25 or >7.55

Carbamazepine (Tegretol)

Reference Range	4.0-12.0 ug/mL
Critical	>12.0 ug/mL

Carbon Dioxide (CO2), Total

Reference Range	22-31 mmol/L
Critical	<10 or >40 mmol/L

Carboxyhemoglobin (Carbon Monoxide, CO)

Reference Range	0.0-1.5 % sat
Critical	>10.0 % sat

CCP IgG Antibodies

Reference Range	<=4.9 U/mL
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CEA (Carcinoembryonic Antigen)

Reference Range	0.0-3.0 ng/mL
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Celiac (Gluten) Antibody Panel (CGL)

Gliadin (deamidated) IgA Antibody

Reference Range	0.0-<7.0 U/mL
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Gliadin (deamidated) IgG Antibody

Reference Range	0.0-<7.0 U/mL
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IgA, Total

Up to 5 Weeks	Reference Range	0-6 mg/dL
5 Weeks up to 9 Weeks	Reference Range	3-17 mg/dL
9 Weeks up to 13 Weeks	Reference Range	8-44 mg/dL
13 Weeks up to 4 Months	Reference Range	11-57 mg/dL
4 Months up to 7 Months	Reference Range	12-76 mg/dL
7 Months up to 25 Months	Reference Range	14-126 mg/dL
25 Months up to 37 Months	Reference Range	26-147 mg/dL
37 Months up to 49 Months	Reference Range	32-189 mg/dL
49 Months up to 6 Years	Reference Range	37-263 mg/dL
6 Years up to 9 Years	Reference Range	53-336 mg/dL
9 Years up to 13 Years	Reference Range	67-357 mg/dL
13 Years up to 16 Years	Reference Range	80-441 mg/dL
16 Years and up	Reference Range	65-400 mg/dL

Tissue Transglutaminase IgG Antibody

Reference Range	0.0-<7.0 U/mL
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Tissue Transglutaminase IgA Antibody

Reference Range	0.0-<7.0 U/mL
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**Chloride, Blood**

Reference Range

98-107 mmol/L

Chloride, 24Hr Urine

Reference Range

110-250 mmol/24hr

Cholesterol, Total

Age 2 Years up to 18 Years

Reference Range

<=169 mg/dL

18 Years and up

Reference Range

<=199 mg/dL

Citrate, 24Hr Urine

Age 0 up to 21 Years	Reference Range	150-1,191 mg/24hr
21 Years up to 22 Years	Reference Range	157-1,191 mg/24hr
22 Years up to 23 Years	Reference Range	164-1,191 mg/24hr
23 Years up to 24 Years	Reference Range	171-1,191 mg/24hr
24 Years up to 25 Years	Reference Range	178-1,191 mg/24hr
25 Years up to 26 Years	Reference Range	186-1,191 mg/24hr
26 Years up to 27 Years	Reference Range	193-1,191 mg/24hr
27 Years up to 28 Years	Reference Range	200-1,191 mg/24hr
28 Years up to 29 Years	Reference Range	207-1,191 mg/24hr
29 Years up to 30 Years	Reference Range	214-1,191 mg/24hr
30 Years up to 31 Years	Reference Range	221-1,191 mg/24hr
31 Years up to 32 Years	Reference Range	228-1,191 mg/24hr
32 Years up to 33 Years	Reference Range	235-1,191 mg/24hr
33 Years up to 34 Years	Reference Range	242-1,191 mg/24hr
34 Years up to 35 Years	Reference Range	250-1,191 mg/24hr
35 Years up to 36 Years	Reference Range	257-1,191 mg/24hr
36 Years up to 37 Years	Reference Range	264-1,191 mg/24hr
37 Years up to 38 Years	Reference Range	271-1,191 mg/24hr
38 Years up to 39 Years	Reference Range	278-1,191 mg/24hr
39 Years up to 40 Years	Reference Range	285-1,191 mg/24hr
40 Years up to 41 Years	Reference Range	292-1,191 mg/24hr
41 Years up to 42 Years	Reference Range	299-1,191 mg/24hr
42 Years up to 43 Years	Reference Range	306-1,191 mg/24hr
43 Years up to 44 Years	Reference Range	314-1,191 mg/24hr
44 Years up to 45 Years	Reference Range	321-1,191 mg/24hr
45 Years up to 46 Years	Reference Range	328-1,191 mg/24hr
46 Years up to 47 Years	Reference Range	335-1,191 mg/24hr
47 Years up to 48 Years	Reference Range	342-1,191 mg/24hr
48 Years up to 49 Years	Reference Range	349-1,191 mg/24hr
49 Years up to 50 Years	Reference Range	356-1,191 mg/24hr
50 Years up to 51 Years	Reference Range	363-1,191 mg/24hr
51 Years up to 52 Years	Reference Range	370-1,191 mg/24hr
52 Years up to 53 Years	Reference Range	378-1,191 mg/24hr
53 Years up to 54 Years	Reference Range	385-1,191 mg/24hr
54 Years up to 55 Years	Reference Range	392-1,191 mg/24hr
55 Years up to 56 Years	Reference Range	399-1,191 mg/24hr
56 Years up to 57 Years	Reference Range	406-1,191 mg/24hr
57 Years up to 58 Years	Reference Range	413-1,191 mg/24hr
58 Years up to 59 Years	Reference Range	420-1,191 mg/24hr
59 Years up to 60 Years	Reference Range	427-1,191 mg/24hr
60 Years and up	Reference Range	434-1,191 mg/24hr



CK, Total

Reference Range	30-190 U/L
Critical	>500 U/L

CKMB

Reference Range	0-7 ng/mL
Critical	>7 ng/mL

Completment C3

Reference Range	83-177 mg/dL
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Completment C4

Reference Range	19-59 mg/dL
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Cortisol, Pre-Dexamethazone

Reference Range	2.0-13.0 ug/dL
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Cortisol (Cosyntropin Stimulation) includes:

- Pre-dose Cortisol
- 30 minute post- dose Cortisol
- 60 minute post-dose Cortisol

Reference Range:

The administration of ACTH to normal subjects results in a rapid rise of serum cortisol. Patients with adrenal destruction show no change in serum cortisol after ACTH administration. Patients with atrophy of the adrenal cortex due to exogenous glucocorticoid treatment or dysfunction of the pituitary gland or hypothalamus may show a slight rise in serum cortisol level, but not one of normal magnitude.

A normal peak serum cortisol is greater than 20 ug/dL (post administration of 0.25 mg cortrosyn).

C-Reactive Protein (CRP)

Reference Range	0.0-0.8 mg/dL
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C-Reactive Protein, High Sensitivity

Reference Range	0.0-3.0 mg/L
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Creatinine, Blood

Female 0 up to 22 Days	Reference Range	0.30-1.00 mg/dL
Male 0 up to 22 Days	Reference Range	0.30-1.00 mg/dL
Female 22 Days up to 13 Months	Reference Range	0.10-0.60 mg/dL
Male 22 Days up to 13 Months	Reference Range	0.10-0.60 mg/dL
Female 13 Months up to 6 Years	Reference Range	0.10-0.50 mg/dL
Male 13 Months up to 6 Years	Reference Range	0.10-0.60 mg/dL
Female 6 Years up to 11 Years	Reference Range	0.20-0.60 mg/dL
Male 6 Years up to 11 Years	Reference Range	0.20-0.70 mg/dL
Female 11 Years up to 16 Years	Reference Range	0.40-0.70 mg/dL
Male 11 Years up to 16 Years	Reference Range	0.30-0.90 mg/dL
Female 16 Years and up	Reference Range	0.60-1.10 mg/dL
Male 16 Years and up	Reference Range	0.70-1.30 mg/dL
	Critical	>6.0 mg/dL

Creatinine, 24Hr Urine

Female	Reference Range	0.8-1.8 g/24 hr
Male	Reference Range	1.0-2.0 g/24 hr



Creatinine Clearance

Reference Range 70-135 mL/min

Digoxin (Lanoxin) drawn a minimum of six hours after last dose

Reference Range (Therapeutic) 0.5-2.0 ng/mL
 Critical >2.5 ng/mL

DNA (DS) Antibody Screen (DNB)

Reference Range <25 IU

Drugs of Abuse (DOA) - Architect C-System semiquant medical screening only:

	<u>DRUG</u>	<u>THRESHOLD</u>
PCP	Phencyclidine	25 ng/mL
BZO	Benzodiazepines	200 ng/mL
COC	Cocaine	150 ng/mL
AMP	Amphetamines	1000 ng/mL
THC	Tetrahydrocannabinol	50 ng/mL
OPI	Opiates	300 ng/mL
BAR	Barbiturates	200 ng/mL
MTHDN	Methadone	300 ng/mL
Oxyco	Oxycodone	100 ng/mL

Estradiol

Male	Prepubertal	< 12 pg/mL
Male	Adult	10-60 pg/mL
Female	Prepubertal	< 8 pg/mL
Female	Early Follicular Phase	30-100 pg/mL
Female	Late Follicular Phase	100-400 pg/mL
Female	Luteal Phase	50-150 pg/mL
Female	Postmenopausal	< 18 pg/mL

Ferritin

Female	0 up to 13 Months	Reference Range	No range established
Male	0 up to 13 Months	Reference Range	No range established
Female	13 Months up to 5 Years	Reference Range	6-24 ng/mL
Male	13 Months up to 5 Years	Reference Range	6-24 ng/mL
Female	5 Years up to 10 Years	Reference Range	10-55 ng/mL
Male	5 Years up to 10 Years	Reference Range	10-55 ng/mL
Female	10 Years up to 20 Years	Reference Range	6-40 ng/mL
Male	10 Years up to 20 Years	Reference Range	23-70 ng/mL
Female	20 Years and up	Reference Range	10-130 ng/mL
Male	20 Years and up	Reference Range	27-300 ng/mL

Fetal Fibronectin

Female Reference Range Negative

Negative result...post 24 weeks gestation is reported to be a predictor of near-term lack of risk of premature labor and delivery. Positive result ... post 24 weeks gestation is possibly a predictor of increased risk for preterm labor and delivery in the next 14 days.



Folate, Serum

Reference Range >=3.5 ng/mL

FSH (Follicle Stimulating Hormone)

Male	Reference Range	0.0-12.0 mIU/mL
Female	Prepubertal	0-10 mIU/mL
Female	Follicular	3-20 mIU/mL
Female	Ovulatory	9-26 mIU/mL
Female	Luteal	0-12 mIU/mL
Female	Postmenopausal	18-153 mIU/mL

Gentamicin

Therapeutic: Peak	5-10 ug/mL
Therapeutic: Trough	0.5-2.0 ug/mL
Toxic / Critical Value: Peak	> 12 ug/mL
Toxic / Critical Value: Trough	> 2 ug/mL

GGT (Gamma GT)

Reference Range 0-50 U/L

Globulin (TP - Albumin)

Reference Range 1.5-3.5 g/dL

Glomerular Filtration Rate (GFR)

Estimated >60 mL/min/1.73m²

Glucose, CSF

Reference Range 40-75 mg/dL

Glucose, Serum or Plasma

Age 0 up to 24 Hours	Reference Range	44-98 mg/dL
	Critical	<40 or >=400 mg/dL
24 Hours up to 48 Hours	Reference Range	53-93 mg/dL
48 Hours up to 72 Hours	Reference Range	50-100 mg/dL
72 Hours up to 4 Days	Reference Range	62-110 mg/dL
4 Days up to 8 Days	Reference Range	57-107 mg/dL
8 Days up to 6 Years	Reference Range	69-115 mg/dL
6 Years up to 11 Years	Reference Range	84-110 mg/dL
11 Years up to 16 Years	Reference Range	79-116 mg/dL
	Critical	<50 or >=400 mg/dL
16 Years and up	Reference Range	70-125 mg/dL
	Critical	<60 or >=400 mg/dL

Glucose, Gestational Challenge (1 Hour)

Reference Range	70-139 mg/dL
Critical	<60 or >=400 mg/dL

Glycosylated Hgb A1C

Reference Range 4.2-6.1 %

HSG Herpes Simplex (Type 1-2 Antibody IgG)

HSV Type 1	Reference Range	0.00-0.90 Index
HSV Type 2	Reference Range	0.00-0.90 Index
HSV Type 1 IgG Antibody	Reference Range	Negative
HSV Type 2 IgG Antibody	Reference Range	Negative



Haptoglobin

Reference Range 33-171 mg/dL

HDL (High Density Lipoprotein) Cholesterol

Female 2 Years up to 18 Years	Reference Range	>45 mg/dL
Male 2 Years up to 18 Years	Reference Range	>45 mg/dL
Female 18 Years and up	Reference Range	>=50 mg/dL
Male 18 Years and up	Reference Range	>=40 mg/dL

Homocysteine

Reference Range 0-13 umol/L

Immunoglobulins: (See individual results reports for reference ranges)

Iron

Female	Reference Range	42-175 ug/dL
Male	Reference Range	42-175 ug/dL

Lactic Acid

Reference Range	0.5-2.2 mmol/L
Critical	>3.4 mmol/L

LDH (Lactic Dehydrogenase)

Age 0 up to 31 Days	Reference Range	135-750 U/L
31 Days up to 13 Months	Reference Range	180-435 U/L
13 Months up to 4 Years	Reference Range	160-370 U/L
4 Years up to 7 Years	Reference Range	145-345 U/L
7 Years up to 10 Years	Reference Range	143-290 U/L
10 Years up to 13 Years	Reference Range	120-293 U/L
13 Years up to 16 Years	Reference Range	110-283 U/L
16 Years up to 18 Years	Reference Range	105-233 U/L
18 Years and up	Reference Range	125-220 U/L

LDL Cholesterol, Calculated

Age 2 Years up to 18 Years	Reference Range	<=109 mg/dL
18 Years and up	Reference Range	<=129 mg/dL

LDL Cholesterol, Direct

Age 2 Years up to 18 Years	Reference Range	<=109 mg/dl
18 Years and up	Reference Range	<=129 mg/dl

Lead, Blood

Reference Range	<5.0 ug/dL
Critical Call to Provider	>15.0 ug/dL
Critical	>40.0 ug/dL

Levetiracetam (Keppra)

Reference Range 6.0-46.0 ug/mL

LH (Luteinizing Hormone)

Male	Reference Range	0.6-12.1 mIU/mL
Female Follicular		1.8-11.8 mIU/mL
Female Mid-Cycle		7.6-89.1 mIU/mL
Female Luteal		0.6-14.0 mIU/mL
Female Postmenopausal		5.2-62.0 mIU/mL
Male and Female Prepubertal		1.0-3.5 mIU/mL

LH Prepubertal ranges from Pediatric Reference Intervals; Soldin, Wong, Brugnara and Soldin; 7th Edition; 2011



Lipase

Reference Range 0-52 U/L

Lithium

Reference Range 0.6-1.2 mmol/L
Critical >1.5 mmol/L

Lyme Antibody < 0.90 Index Value - Negative.

No detectable antibodies to B burgdorferi. This may be seen in patients with early Lyme disease. If symptoms persist, a repeat specimen collection is recommended in 2 - 4 weeks.

0.90 - <1.10 Index Value - Borderline.

Suggests the presence of antibodies to B. burgdorferi. Recommend repeat collection in 2 - 4 weeks.

> 1.10 Index Value - Positive.

Indicates the presence of antibodies to B. burgdorferi.

Lyme Confirmation (Lyme Disease Antibody; ImmunoBlot) includes:

- IgG Blot: NEG or POS
- IgG Band(s): Listing of positive bands
- IgM Blot: NEG or POS
- IgM Band(s): Listing of positive bands
- Reportable Disease: Yes or not to report to MDH
- Interpretation: See interpretation below.

CDC criteria requires >=5 bands for IgG or >=2 bands for IgM for the Blot to be considered positive. Bands (e.g. p41) may be detected in patients without Lyme disease; and patterns not meeting the CDC criteria should be interpreted with caution.

Lyme Blot should be ordered only on specimens that are positive or equivocal by a FDA-licensed Lyme disease antibody screening test.

Interpretations:

1. Both IgG and IgM are Negative:
Specific serologic response to B. Burgdorferi is not detected, but cannot rule out early infection during which low or undetectable antibody levels to B. burgdorferi may be present. If clinically indicated, a new serum specimen should be submitted in 2-3 weeks.
2. IgG is positive, IgM Negative:
Consistent with infection with B. Burgdorferi at some time in the past.
3. Both IgG and IgM are Positive:
Consistent with active or previous infection for B. Burgdorferi
4. IgG is negative, IgM is Positive:
Consistent with early infection with B. burgdorferi. A new serum specimen should be Submitted in 2-3 weeks to demonstrate seroconversion of IgG.
5. No bands detected:
No bands detected.



Magnesium, Blood

Reference Range	1.8-2.6 mg/dL
Critical	<1.1 or >4.0 mg/dL

Magnesium, 24Hr Urine

Reference Range	75-150mg/24hr
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Methemoglobin

Reference Range	0.0-2.0 % Saturation
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Microalbumin, Random Urine

Microalbumin, Random Urine	Reference Range	0.00-1.99 mg/dL
Microalbumin/Creat Ratio	Reference Range	<=19.9 mg/g

Microalbumin, 24Hr Urine

Microalbumin 24 hr Urine	Reference Range	0.00-22.00 mg/24 hrs
Microalbumin, Urine	Reference Range	0.00-1.99 mg/dL
Microalbumin/Creat Ratio	Reference Range	<=19.9 mg/g
Albumin Excretion Rate	Reference Range	0.0-19.9 ug/min

Interpretation of Quantitative Microalbumin Results:

Random Urine Microalbumin	Normal	< 2.0 mg/dL
	Microalbuminuria	3.0-30.0 mg/dL
	Clinical Proteinuria	> 30.0 mg/dL
Random Microalbumin/Creatinine Ratio	Normal	< 20 mg/gram creatinine
	Microalbuminuria	30-300 mg/gram creatinine
	Clinical Proteinuria	> 300 mg/gram creatinine
Timed Collections: Albumin Excretion Rate (AER)		
	Normal	< 20 µg/min
	Microalbuminuria	20-200 µg/min
	Clinical Proteinuria	> 200 µg/min
24-Hour Timed Collection	Excretion mg microalbumin/day	
	Normal	< 22 mg/day
	Microalbuminuria	30-300 mg/day
	Clinical Proteinuria	> 300 mg/day

A diabetic patient should be considered as having established microalbuminuria only when that level of albuminuria is present in at least two of three urine collections over a 6-month period. This is important because albumin excretion in the diabetic may also be increased when the disease is newly diagnosed, during poor metabolic and blood pressure control, during physical exercise, and in the presence of urinary tract infection or superimposed nondiabetic renal or systemic disease.

Mumps Antibody, IgG

Reference Range	>=0.50 TV
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Osmolality, Blood

Reference Range	270-300 mOsm/kg
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Osmolality, 24Hr Urine

Reference Range	270-900 mOsm/kg
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Osmolality, Random Urine (with average fluid intake)

Reference Range	300-900 mOsm/kg
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Oxalate, 24Hr Urine			
	Reference Range		7.0-44.0 mg/24hr
Parathyroid Hormone			
	Reference Range		10-86 pg/mL
Phenobarbital (Luminal®)			
	Reference Range		20.0-40.0 ug/mL
	Critical		>50.0 ug/mL
Phenytoin (Dilantin)			
	Reference Range		10.0-20.0 ug/mL
	Critical		>25.0 ug/mL
Phenytoin, Free (Dilantin Free)			
	Reference Range		1.0-2.0 ug/mL
	Critical		>2.6 ug/mL
Phosphorus, Blood			
Age 0 up to 6 Years	Reference Range		2.9-6.8 mg/dL
6 Years up to 11 Years	Reference Range		3.1-6.3 mg/dL
11 Years up to 16 Years	Reference Range		2.5-6.0 mg/dL
16 Years and up	Reference Range		2.5-4.5 mg/dL
Phosphorus, 24Hr Urine			
	Reference Range		0.4-1.3 g/24hr
Potassium, Blood			
Age 0 up to 6 Years	Reference Range		3.5- 5.5 mmol/L
6 Years and up	Reference Range		3.5-5.0 mmol/L
	Critical		<2.9 or >6.0 mmol/L
Potassium, 24Hr Urine			
	Reference Range		30-90 mmol/24hr
Pre-Albumin			
	Reference Range		19.0-38.0 mg/dL
Procalcitonin			
	Reference Range		0.00-0.49 ng/mL
Procalcitonin Interpretation			
	<0.5 ng/mL:		Low risk of sepsis
	0.5-2.0 ng/mL:		Sepsis possible
	>=2.0ng/mL:		High risk of sepsis
<hr/>			
Progesterone			
Male	Reference Range		0.1-1.0 ng/mL
Female	Follicular		0.2-0.9 ng/mL
Female	Luteal		2.5 - 28.0 ng/mL
Female	Mid-Luteal		5.7 - 27.0 ng/mL
Female	>60 Years		0-0.6 ng/mL
Female	B. C. Pill		0-0.6 ng/mL
Preganancy	1 st Trimester		9-81.0 ng/mL
Preganancy	2 nd Trimester		19.0-89.0 ng/mL
Preganancy	3 rd Trimester		55.0-255.0 ng/mL



Prolactin			
	Female	Reference Range	0.0-20.0 ng/mL
	Male	Reference Range	0.0-15.0 ng/mL
Protein, CSF			
		Reference Range	15-45 mg/dL
Protein, Total			
	Age 0 up to 6 Years	Reference Range	5.9-8.4 g/dL
	6 Years up to 11 Years	Reference Range	6.6-8.3 g/dL
	11 Years up to 16 Years	Reference Range	6.0-8.4 g/dL
	16 Years and up	Reference Range	6.0-8.0 g/dL
Protein, 24Hr Urine			
		Reference Range	0-150 mg/24hr
PSA (Prostatic Specific Antigen)			
	Male Age 0 up to 50 Years	Reference Range	0.0-2.5 ng/mL
	Male 50 Years up to 60 Years	Reference Range	0.0-3.5 ng/mL
	Male 60 Years up to 70 Years	Reference Range	0.0-4.5 ng/mL
	Male 70 Years and up	Reference Range	0.0-6.5 ng/mL
	Female	Reference Range	0.0-4.0 ng/mL
Quantiferon TB Gold			
		Reference Range	Negative
RF (Rheumatoid Factor), Quantitative			
		Reference Range	0-30 IU/mL
<u>RPR – see Treponema Antibody</u>			
Rubella, Antibody IgG			Immune (reported as non-immune; immune; equivocal)
Rubeola, Antibody IgG			Immune (reported as non-immune; immune; equivocal)
Salicylate			
		Reference Range	2.0-25.0 mg/dL
		Critical	>30.0 mg/dL
Sodium, Blood			
		Reference Range	136-145 mmol/L
		Critical	<120 or >150 mmol/L
Sodium, 24Hr Urine			
		Reference Range	40-217 mmol/24hr
T3 (Triiodothyronine), Free			
		Reference Range	1.9-3.9 pg/mL
T3, Total			
		Reference Range	45-175 ng/dL
T4 (Thyroxine), Free			
		Reference Range	0.7-1.8 ng/dL

**T4, Total**

Age 5 Weeks up to 13 Months	Reference Range	6.1-14.9 ug/dL
13 Months up to 3 Years	Reference Range	6.8-13.5 ug/dL
3 Years up to 10 Years	Reference Range	5.5-12.8 ug/dL
10 Years and up	Reference Range	4.5-13.0 ug/dL

Testosterone

Male Age 21 Years up to 50 Years	Reference Range	240-871 ng/dL
Female 21 Years up to 50 Years	Reference Range	14-53 ng/dL
Male 50 Years and up	Reference Range	221-716 ng/dL
Female 50 Years and up	Reference Range	12-36 ng/dL

Theophylline (Theo-dur®)

Reference Range	10.00-20.00 ug/mL
Critical	>20.00 ug/mL

TSH (Thyroid Stimulating Hormone)

Age 0 up to 8 Days	Reference Range	3.20-21.00 uIU/mL
8 Days and up	Reference Range	0.30-5.00 uIU/mL

(Please note: TSH has a significant diurnal variation)

Thyroid Peroxidase Antibody

Reference Range	0.0-5.6 IU/mL
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Tobramycin (Nebcin®)

Peak	5-10 ug/mL
Trough	0.5-2.0 ug/mL
Critical Peak	>12.0 ug/mL
Critical Trough	>2.0 ug/mL

Transferrin

Reference Range	212-360 mg/dL
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Transferrin Saturation (Calculated)

Reference Range	20-50 %
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Transferrin Iron Binding Capacity (Calculated)

Reference Range	313-563 ug/dL
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Triglycerides

Age 2 Years up to 10 Years	Reference Range	<=74 mg/dL
10 Years up to 18 Years	Reference Range	<=89 mg/dL
18 Years and up	Reference Range	<=149 mg/dL

Treponema Antibody, Syphilis Screen Cascade (RPR)

Treponema Aby Reference Range	<0.9
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Troponin I

Reference Range	0.00-0.29 ng/mL
Critical	>0.29 ng/mL

Urea Nitrogen, 24Hr Urine

Reference Range	12-20 g/24hr
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**Uric Acid**

Female Age 0 up to 6 Years	Reference Range	2.1-6.3 mg/dL
Male 0 up to 6 Years	Reference Range	2.1-6.3 mg/dL
Female 6 Years up to 11 Years	Reference Range	3.0-5.1 mg/dL
Male 6 Years up to 11 Years	Reference Range	3.0-5.1 mg/dL
Female 11 Years up to 16 Years	Reference Range	3.0-5.1 mg/dL
Male 11 Years up to 16 Years	Reference Range	3.0-5.1 mg/dL
Female 16 Years and up	Reference Range	2.0-7.5 mg/dL
Male 16 Years and up	Reference Range	3.0-8.0 mg/dL

Uric Acid, 24Hr Urine

Reference Range 250-750 mg/24hr

Valproic Acid (Depakene®)

Reference Range 50.0-150.0 ug/mL
Critical >200.0 ug/mL

Vancomycin (Vancocin®)

Meningitis Goal Trough 15.0-20.0 ug/mL
Pneumonia, Osteomyelitis, Endocarditis Goal Trough 15.0-20.0 ug/mL
All other Infections Goal Trough 10.0-15.0 ug/mL
Critical Trough >25.0 ug/mL
Critical Peak >80.0 ug/mL

Varicella Zoster Antibody, IgG

Immune
(Reported as non-immune; immune;
equivocal)

Vitamin B12

Reference Range 213-816 pg/mL

Vitamin D, Total 25-Hydroxy

Reference Range 30.0-80.0 ng/mL
Critical >100.0 ng/mL



Hematology Normal Ranges

January 2017

	<u>AGE</u>	<u>NORMAL</u>	<u>UNITS</u>
Anti-thrombin III Activity (functional)		78 – 134	%
Anti XA-Heparin Assay	Adult (Therapeutic)....	0.30 - 0.70	IU/ml
.....	<u>Critical Value</u>	≥ 1.1	IU/ml
Anti XA-LMWH	Adult (Therapeutic)....	0.4 - 1.1	IU/ml
.....	<u>Critical Value</u>	≥ 2.0	IU/ml
APTT	Adult	24 - 37	seconds
Bands		< 15	%
Basophils	All ages	< 2	%
Basophils (Absolute)	0-3 days.....	0.0 - 0.4	thou/uL
	4days-8yrs.....	0.0 - 0.2	thou/uL
	9 -18yrs	0.0 - 0.1	thou/uL
CSF Cell Count	Children	0 - 30	cells/uL
	Adult	0 - 5	cells /uL
D-Dimer Assay.....	Adult	<0.5	ug/mL FEU
Eosinophil	0-30 days	< 3	%
	31days-18yrs	< 4	%
Eosinophils (Absolute)	0-3 days	0.0 - 0.7	thou/ml
	4d-9d	0.0 - 0.5	thou/ml
	10 -14d	0.0 - 0.4	thou/ml
	15 -5 yrs	0.0 - 0.5	thou/ml
	5 -18yrs	0.0 - 0.4	thou/ml
ESR (Sedimentation Rate)	Female	0 - 20	mm/hr
	Male	0 - 15	mm/hr
Factor X Assay, Chromogenic		>60	%
		Therapeutic range for Warfarin is 20-40	
Fibrinogen, Quantitative	Adult	170 - 410	mg/dL
.....	<u>Critical Value</u>	<100	mg/dL
G6PD Screen	All ages	Strong fluorescence	



	<u>AGE</u>	<u>NORMAL</u>	<u>UNITS</u>
Hematocrit	0 days.....	45.0 - 67.0	%
	1 wk	42.0 - 66.0	%
	2 wks	39.0 - 63.0	%
	1 month	31.0 - 55.0	%
	2 months	28.0 - 42.0	%
	3-6 months	29.0 - 41.0	%
	6mo-2yr	33.0 - 49.0	%
	2-6yrs	34.0 - 40.0	%
	6-12 yrs	35.0 - 45.0	%
	12-18 ys	36.0 - 51.0	%
	(male)		
	12-18 yrs	33.0 - 51.0	%
	(female)		
	Female adult..	35.0 - 47.0	%
Male adult	40.0 - 54.0	%	
Hemoglobin	0 days.....	14.5 - 22.5	g/dL
	1 wk	13.5 - 19.5	g/dL
	2 wks	12.5 - 20.5	g/dL
	1 month	10.0 - 18.0	g/dL
	2 months.....	9.0 - 14.0	g/dL
	3-6 months	9.5 - 13.5	g/dL
	6mo-2yr	10.5 - 13.5	g/dL
	2-6yrs	11.5 - 15.5	g/dL
	6-12 yrs	11.5 - 15.5	g/dL
	12-18 yrs	13.0 - 16.0	g/dL
	(male)		
	12-18 yrs	12.0 - 16.0	g/dL
	(female)		
	Female adult..	12.0 - 16.0	g/dL
Male adult	14.0 - 18.0	g/dL	
.....	<u>Critical Value</u>	<7.0 or >20.0	g/dL

Heparin Associated Immune Thrombocytopenia (HIT) <0.400 OD
 Critical Value >1.000 OD

Use of the 4T's scale is recommended for making decisions regarding appropriateness of PF4 testing (see below):

Category	2 points	1 point	0 points
Thrombocytopenia	>50% fall, or nadir $\geq 20 \times 10^9/L$	30-50% fall, or nadir $10-19 \times 10^9/L$	<30% fall, or nadir $< 10 \times 10^9/L$
Timing of the decrease in platelet count	Days 5-10, or \leq day 1 with recent heparin (past 30 days)	>Day 10 or timing unclear, or <day 1 if heparin exposure within past 30-100 days	< Day 4 no recent heparin
Thrombosis or other sequelae	Proven thrombosis, skin necrosis, or acute systemic reaction after heparin bolus	Progressive, recurrent, or silent thrombosis; erythematous skin lesions	None
Other causes of thrombocytopenia	None evident	Possible	Definite

Scoring: 6 - 8 points = High probability of HIT
 4 - 5 points = Moderate probability of HIT
 0 - 3 points = Low probability of HIT = HIGH NEGATIVE PREDICTIVE VALUE

(Warkentin & Heddle. Curr hematol Report 2003; 148 & Lo *et al.* J Thrombo Haemost 2006;4:759)



	<u>AGE</u>	<u>NORMAL</u>	<u>UNITS</u>
INR	Adult	0.90 - 1.10	
		INR Therapeutic Ranges 2.0 - 3.5	
		Mech. Valve	2.5 - 3.5
		Post surg	2.0 - 3.0
		DVT/PE	2.0 - 3.0
.....	<u>Critical Value</u>	>5.5	
Kleihauer-Betke Stain	Adult	<1% Hgb F cells%	
Lupus Anticoagulant Screen	Adult	< 48	seconds
Lupus Anticoagulant Confirm	Adult	< 41	seconds
Screen to Confirm Ratio	Adult	< 1.3	
Lymphs	0-3 day	19-29	%
	4-9 day	26 - 36	%
	10-14 day	36 - 45	%
	15-30 day	43 - 53	%
	1 mo-6mo	41 - 71	%
	7mo-2yr	45 - 76	%
	2yr-5yr	35 - 65	%
	5 -8yr	28 - 48	%
	9 -12yr	28 - 48	%
	13 -18yr	25 - 45	%
	Adult	20 - 40	%
Lymphs (Absolute)	0 - 3 days	1.7 - 10.2	thou/uL
	4 -9d	1.3 - 7.6	thou/uL
	10 -14d	1.8 - 9.0	thou/uL
	15 -30d	2.2 - 10.3	thou/uL
	1mo-6mo	2.5 - 12.4	thou/uL
	7mo-2yr	2.7 - 12.9	thou/uL
	2yr-5yr	1.9 - 10.1	thou/uL
	5 -8yr	1.4 - 7.0	thou/uL
	9 -12yr	1.3 - 6.5	thou/uL
	13 -18yr	1.1 - 5.6	thou/uL
MCH	1 day.....	31.0 - 37.0	pg
	1wk-1mo	28.0 - 40.0	pg
	1-2 mo	26.0 - 34.0	pg
	3-6 mo	25.0 - 35.0	pg
	6mo-2yr	23.0 - 31.0	pg
	2-6yrs	24.0 - 30.0	pg
	6-12 yrs	25.0 - 33.0	pg
	12-18 yrs	25.0 - 35.0	pg
	Adult	27.0 - 34.0	pg
MCHC	1 day.....	29.0 - 37.0	g/dL
	1wk-1mo.....	28.0 - 38.0	g/dL
	1-2mo	29.0 - 37.0	g/dL
	3mo-2yr	30.0 - 36.0	g/dL
	2-18yr	32.0 - 36.0	g/dL
	Adult	32.0 - 36.0	g/dL



	<u>AGE</u>	<u>NORMAL</u>	<u>UNITS</u>	
MCV	0-3 days	95 - 121	fL	
	1 week	88 - 126	fL	
	2 weeks	86 - 124	fL	
	1 month	85 - 123	fL	
	2 months	77 - 115	fL	
	3-6 mo	74 - 108	fL	
	6mo-2yr	70 - 86	fL	
	2-6yr	75 - 87	fL	
	6-12yr	77 - 95	fL	
	12-18yr	78 - 98	fL	
	(male)			
	12-18yr	78 - 102	fL	
	(female)			
	Adult	80 - 100	fL	
Mean Platelet Volume	Adult	7.0 - 10.0	fL	
Mean Platelet Volume (Sysmex Analyzer)	Adult	8.5 - 12.5	fL	
Monocytes	0-9days	5-7	%	
	10-14 days	6-10	%	
	15-30 days	7-11	%	
	1mo -6 mo	4-7	%	
	7mo-18yr	3.6	%	
	Adult	2 - 10	%	
Monocytes (Absolute)	0-3d	0.5 - 2.5	thou/ul	
	4-9d	0.3 - 1.5	thou/ul	
	10-14d	0.3 - 2.0	thou/ul	
	15-30d	0.4 - 2.1	thou/ul	
	1mo-6 mo	0.2 - 1.2	thou/ul	
	7mo-2yr	0.2 - 1.0	thou/ul	
	2 -5yr	0.2 - 0.9	thou/ul	
	5 -8yr	0.2 - 0.8	thou/ul	
	9 -18yr	0.1 - 0.8	thou/ul	
Nasal Smear for Eosinophils	All ages.....	Rare to few eosinophils		
Neutrophils.....	0-3d.....	32 - 62.....	%	
	4-9d	19 - 49	%	
	10-14d	14 - 34	%	
	15-30d	15 - 35	%	
	1mo-6mo	13 - 33	%	
	7m-2yr	15 - 35	%	
	2 -5yr	23 - 45	%	
	5-8 yr	32 - 54	%	
	9-12yr	33 - 61	%	
	13-18 yr	34 - 64	%	
	Adult	50 - 70	%	



	<u>AGE</u>	<u>NORMAL</u>	<u>UNITS</u>
Neutrophils (Absolute)	0-3 days	3.0 - 28.0	thou/uL
	4-9d	1.0 - 13.0 ...	thou/uL
	10-14d	1.0 - 10.0 ...	thou/uL
	15-30d	1.0 - 9.0	thou/uL
	1mo-6mo	1.0 - 8.0	thou/uL
	7mo-2yr	1.0 - 8.0	thou/uL
	2-5yr	1.5 - 8.5	thou/uL
	5-8yr	1.5 - 9.0	thou/uL
	9-12yr	1.5 - 9.5	thou/uL
	13-18yr	1.5 - 9.5	thou/uL
	Adult	2.0 - 7.7	thou/uL
Platelet Count	Adult	140 - 440	thou/uL
.....	<u>Critical Value</u>	<50 or >1,000	thou/uL
Platelet Function Closure Time	Adult:		
with Collagen/Epinephrine	< 181 seconds		
with Collagen/ADP	< 111 seconds		
Protein C Activity (functional)		76 - 137	%
Protein S Activity (functional)	Females.....	62 - 102	%
	Males	71 - 111	%
RBC	0 days.....	4.00 - 6.60 ..	mill/uL
	1 week.....	3.90 - 6.30 ..	mill/uL
	2 weeks	3.60 - 6.20 ..	mill/uL
	1 month	3.00 - 5.40 ..	mill/uL
	2 months	2.70 - 4.90 ..	mill/uL
	3-6mo	3.10 - 4.50 ..	mill/uL
	6mo-2yr	3.70 - 5.30 ..	mill/uL
	2-6yrs	4.00 - 5.20 ..	mill/uL
	12-18yrs	4.50 - 5.30 .	mill/uL
	(male)		
	12-18yrs	4.10 - 5.10 .	mill/uL
	(female)		
	Female:	3.80 - 5.40 ..	mill/uL
	Male:.....	4.40 - 6.20 ..	mill/uL
RDW	Adult	11.0 - 14.5 ..	%
Reticulocytes		0.01 - 0.11	million/uL
Sickle Cell Screen	6 mo. - Adult	Negative	



	<u>AGE</u>	<u>NORMAL</u>	<u>UNITS</u>
WBC	0-3 days.....	9.0 - 35.0	thou/uL
	4-9 d	5.0 - 21.0	thou/uL
	10-14d	5.0 - 20.0	thou/uL
	15-30d	5.0 - 19.5	thou/uL
	1mo-6mo	6.0 - 17.5	thou/uL
	7mo-2yr	6.0 - 17.0	thou/uL
	2-5yr	5.5 - 15.5	thou/uL
	5-8yr	5.0 - 14.5	thou/uL
	9-12yr	4.5 - 13.5	thou/uL
	13-18yr	4.5 - 13.0	thou/uL
	Adult	4.0 - 11.0	thou/uL
.....	<u>Critical Value</u>	<2 or >30.0 .	thou/uL



Urinalysis Normal Ranges

January 2017

Expected values:

<u>TEST</u>	<u>NORMAL VALUES</u>
Color	Light yellow to amber
Appearance	Clear
Specific gravity.....	1.002 - 1.030
pH.....	4.5 - 8.0
Protein	Negative
Glucose	Negative
Ketones	Negative
Bilirubin.....	Negative
Blood (Hemastix)	Negative
Urobilinogen.....	< 2.0 Ehrlich units
Nitrite	Negative
Leukocyte	Negative
RBC	0 - 2/hpf
WBC	0 - 5/hpf
Epithelial cells	0 - 5/lpf