

UPMC Presbyterian Shadyside Automated Testing Laboratories  
 Department of Pathology  
 2020 Reference Ranges

| Test                                | Reference Range   | Units                     |
|-------------------------------------|---|---------------------------|
| Serum/Plasma                        |   |                           |
| AKI Rist Score (Acute Kidney Index) | Less than 0.3   | No units                  |
| Albumin                             | 0 D: 2.9-5.5<br>1 M: 3.8-5.4<br>15Y: 3.4-5.0  | g/dL                      |
| Alkaline Phosphatase                | 0 D: less than 310<br>1 M: less than 360<br>1 Y: less than 290<br>10Y: less than 400<br>15Y: 38-126 | IU/L                      |
| ALT (Alanine Aminotransferase)      | <b>Male:</b> 17-63<br><b>Female:</b> 14-54  | IU/L                      |
| Ammonia                             | 1M to 14 Y: 12-38<br>15Y: 9-33  | µmol/L                    |
| AST(Aspartate Aminotransferase)     | 15-41   | IU/L                      |
| Amylase                             | Less than 65  | IU/L                      |
| Anion Gap                           | 7-15  | mmol/L                    |
| Bilirubin, Direct                   | 0.1 – 0.5   | mg/dL                     |
| Bilirubin, Total                    | 0D: 1-12<br>1M: 0.2-1.3<br>15Y: 0.3-1.5   | mg/dL                     |
| BUN(Blood Urea Nitrogen)            | 0D: 6-18<br>15Y: 8-26   | mg/dL                     |
| Creatinine                          | 0D: 0.1 - 0.6<br>10Y: 0.2 - 1.1<br>15Y: 0.5-1.4   | mg/dL                     |
| Calcium                             | 0D: 7-12<br>1M: 8.8-10.8<br>15Y: 8.4-10.2   | mg/dL                     |
| Chloride                            | 98-107  | mmol/L                    |
| eGFR                                | < 60 can indicate chronic kidney disease<br><15 can indicate chronic kidney failure                 | mL/min/1.73m <sup>2</sup> |
| CO <sub>2</sub> (Carbon Dioxide)    | 21-31   | mmol/L                    |
| Glucose                             | 70-99 - Fasting<br>Less than 1M: 40-99  | mg/dL                     |
| Magnesium                           | 0D: 1.2-2.6<br>7D: 1.6-2.6<br>2Y: 1.6-2.2<br>15Y: 1.6-2.3   | mg/dL                     |

| Test       | Reference Range   | Units |
|------------|---|-------|
| Phosphorus | 0D: 5.5-9.5<br>1M: 4.5-6.5<br>1Y: 4.5-5.5<br>15Y: 2.5-4.6 | mg/dL |

| Test                               | Reference Range  | Units  |
|------------------------------------|--|--------|
| Serum/Plasma                       |  |        |
| Potassium                          | 0D: 3.7-5.9<br>1M: 4.1-5.3<br>1Y: 3.4-4.7<br>15Y: 3.5-5.0  | mmol/L |
| Sodium                             | 136-146  | mmol/L |
| Uric Acid                          | 0D: 2.0-5.5<br>15Y: 2.5-7.5<br>17Y: 2.5-6.2<br>35Y: 2.5-7.0<br>45Y: 2.5-7.5  | mg/dL  |
| GTP (gamma glutamyl transferase)   | <b>Male</b> - 0D: less than 121<br>1Y: less than 45<br>15Y: less than or equal to 65<br><b>Female</b> - 0D: less than 121<br>1Y: 45<br>15Y: less than or equal to 40 | IU/L   |
| Total Protein                      | 0D: 4.4-7.6<br>1M: 5.1-7.3<br>1Y: 6.0-8.0<br>15Y: 6.3-7.7  | g/dL   |
| Lipase                             | 15-70  | U/L    |
| Total CPK (creatine phosphokinase) | Less than or equal to 200  | IU/L   |
| CK-MB                              | 0-5  | ng/mL  |
| Lactate (plasma)                   | 0.5-2.2  | mmol/L |
| LDH (lactate dehydrogenase)        | 0D: less than 450<br>1M: less than 250<br>1Y: less than 171  | IU/L   |
| Iron                               | <b>Male:</b> 45-182<br><b>Female:</b> 28-170   | ug/dL  |
| Transferrin                        | 202-336  | mg/dL  |
| TIBC                               | 250-420  | ug/dL  |
| Ferritin                           | 10-282   | ng/mL  |
| Folate                             | Greater than 5.0   | ng/mL  |
| RBC Folate                         | 293-809  | ng/mL  |
| Vitamin B12                        | 211-911  | pg/mL  |
| Troponin I                         | Normal: less than 0.1<br>Borderline elevation: 0.1-0.49<br>Elevated troponin suggestive of myocardial injury:<br>greater than or equal to 0.50                       | ng/mL  |
| BNP (beta natriuretic peptide)     | Less than 100  | pg/mL  |
| CRP                                | Less than 0.75   | mg/dL  |
| hs-CRP (high sensitivity CRP)      | Less than 0.748  | mg/dL  |
| Total βhCG                         | Less than 5.0  | mIU/mL |

| Test                                   | Reference Range   | Units  |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
|--|---|--------|----------|--------|--------|------|-------|---------|------|-------|----------|------|-------|-------|------|-------|---------|------|-------|-------|------|-------|---------|------|-------|-------|
| Serum/Plasma                           |   |        |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| AFP (alpha fetal protein)              | 0D: less than 170,000<br>1M: less than 400<br>3M: less than 30<br>6M: less than 20  | ng/mL  |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| CEA (carcinoembryonic antigen)         | Less than 5   | ng/mL  |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| CA 15-3 (cancer antigen (breast) 15-3) | Less than 30  | U/mL   |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| CA 19-9 (cancer antigen (GI) 19-9)     | Less than 33  | U/mL   |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| CA 125 (cancer antigen 125)            | Less than 35  | U/mL   |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| Total PSA (prostate specific antigen)  | 0-4.0   | ng/mL  |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| Complement C3                          | 79-152  | mg/dL  |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| Complement C4                          | 16-38   | mg/dL  |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| Cortisol                               | <p>Adults: 8am-10am: 5-21<br/>4pm-6pm: 2-14<br/>Post ACTH Stimulation<br/>Peak – greater than 20<br/>Peak after IM injection – greater than 16</p> <p>Child – AM: 0-7D: 2 – 15<br/>8D- 12M: 3 – 23<br/>1YR – 17YR: 6 – 22</p> <p>ACTH Stimulation</p> <table border="0"> <thead> <tr> <th></th> <th>Baseline</th> <th>60 Min</th> </tr> </thead> <tbody> <tr> <td>1M-12M</td> <td>3-23</td> <td>32-60</td> </tr> <tr> <td>1Y – 6Y</td> <td>6-25</td> <td>22-40</td> </tr> <tr> <td>6Y – 12Y</td> <td>3-15</td> <td>17-28</td> </tr> </tbody> </table> <p>Tanner II-III</p> <table border="0"> <tbody> <tr> <td>Males</td> <td>4-13</td> <td>16-32</td> </tr> <tr> <td>Females</td> <td>4-16</td> <td>16-32</td> </tr> </tbody> </table> <p>Tanner IV-V</p> <table border="0"> <tbody> <tr> <td>Males</td> <td>5-15</td> <td>18-27</td> </tr> <tr> <td>Females</td> <td>6-15</td> <td>18-35</td> </tr> </tbody> </table> |        | Baseline | 60 Min | 1M-12M | 3-23 | 32-60 | 1Y – 6Y | 6-25 | 22-40 | 6Y – 12Y | 3-15 | 17-28 | Males | 4-13 | 16-32 | Females | 4-16 | 16-32 | Males | 5-15 | 18-27 | Females | 6-15 | 18-35 | µg/dL |
|  | Baseline  | 60 Min |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| 1M-12M                                 | 3-23  | 32-60  |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| 1Y – 6Y                                | 6-25  | 22-40  |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| 6Y – 12Y                               | 3-15  | 17-28  |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| Males                                  | 4-13  | 16-32  |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| Females                                | 4-16  | 16-32  |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| Males                                  | 5-15  | 18-27  |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |
| Females                                | 6-15  | 18-35  |          |        |        |      |       |         |      |       |          |      |       |       |      |       |         |      |       |       |      |       |         |      |       |       |

| Test                               | Reference Range   | Units  |
|------------------------------------|---|--------|
| Serum/Plasma                       |   |        |
| FSH (follicle-stimulating hormone) | <p><b>Male</b><br/> 2W: 1.2-5.2                                        18M: 0.2-3.0<br/> 19M: 0.3-1.9                                        8Y: 0.7-1.7<br/> 10Y: 0.2-5.8                                        12Y: 0.2-10.3<br/> 15Y: 0.8-8.2                                        19Y: 1.5-14.3<br/> <i>Tanner stage s</i>: I:0.3-1.9 II:0.7-4.6 III: 1.2-10.4 IV: 15-40 V 10-40</p> <p><b>Female</b><br/> 2W: 2.1-30.5                                        18M: 1.1-14.4<br/> 19M: 0.7-3.4                                        8Y: 0-5.6<br/> 10Y: 0.7-7.3                                        12Y:1.0-9.2<br/> 15Y: 0.3-10.5<br/> Follicular: 1.4-9.39<br/> Midcycle peak: 6.2-17.2<br/> Luteal: 1.1-9.2<br/> Postmenopausal: 14.9-124.3<br/> <i>Tanner stages</i> : I:0.5-2.4 II: 1.7-4.7 III: 2.5-7.0 IV: 1.3-7.4 V:1.0-9.2</p>   | mIU/mL |
| LH (luteinizing hormone)           | <p><b>Male</b><br/> Cord blood: 0.1-2.6<br/> 2W: 4.9-10.0                                        18M: 0.1-3.0<br/> 19M: 0.1-1.0                                        8Y: 0.1-0.8<br/> 10Y: 0.4-4.4                                        12Y: 0.3-4.8<br/> 15Y: 0.7-7.2                                        15Y: 0.7-7.2<br/> 19Y: 1.0-5.6<br/> <i>Tanner stages</i>: I:0.1-0.4 II:0.-4.8 III:0.6-3.7 IV:0.6-7.2 V:1.5-7.0</p> <p><b>Female</b><br/> Cord blood: 0.1-2.6<br/> 2W: 0.3-7.9                                        18M: 0.1-1.8<br/> 19M: 0.1-0.6                                        8Y: 0.1-0.2<br/> 10Y: 0.1-4.1                                        12Y: 0.3-29.4<br/> 15Y: 0.1-29.4<br/> Follicular phase: 1.7-15.0<br/> Midcycle peak: 21.9-56.6<br/> Luteal phase: 0.6-16.3<br/> Postmenopausal: 9.0-52.3<br/> <i>Tanner stages</i>: I:0.1-0.2 II:0.3-4.1 III:0.2-4.1 IV:0.7-15.0 V:0.3-29.4</p> | mIU/mL |
| Acetone                            | Negative  | N/A    |
| Estradiol                          | <b>Male:</b> 20-75<br><b>Female:</b> 20-88  | pg/mL  |
| Haptoglobin                        | 36-195  | mg/dL  |

| Test                       | Reference Range  | Units |
|----------------------------|--|-------|
| Serum/Plasma               |  |       |
| Prealbumin                 | 0M: 7-39<br>1M: 8-34<br>6M: 12-36<br>1Y: 8-34<br>4Y: 12-30<br>6Y: 12-42<br>20Y: 18-38  | mg/dL |
| IgA (SHY) Immunoglobulin A | 0D: 0-8<br>1M: 2-27<br>4M: 4-63<br>7M: 15-72<br>13M: 15-97<br>25M: 15-144<br>37M: 15-241<br>5Y: 15-161<br>7Y: 21-195<br>9Y: 59-301<br>12Y: 401-218<br>14Y: 82-453                              | mg/dL |
| IgG (SHY) Immunoglobulin G | 0D: 605-1374<br>1M: 184-641<br>4M: 55-765<br>7M: 214-1055<br>13M: 330-1133<br>25M: 505-1280<br>37M: 559-1116<br>5Y: 499-1198<br>7Y: 580-1256<br>9Y: 484-1309<br>12Y: 577-1322<br>14Y: 751-1560 | mg/dL |
| IgM (SHY) immunoglobulin M | 0D: 1-20<br>1M: 8-49<br>4M: 9-73<br>7M: 8-95<br>13M: 11-99<br>25M: 22-94<br>37M: 22-99<br>5Y: 17-86<br>7Y: 21-120<br>9Y: 15-103<br>12Y: 8-133<br>14Y: 40-274                                   | mg/dL |

| Test                            | Reference Range  | Units    |
|---------------------------------|--|----------|
| Serum/Plasma                    |  |          |
| Progesterone                    | Males: 0.0 – 1.2<br>Females:<br>Follicular phase: 0.32–4.77<br>Luteal phase: 7.9–87.9<br>Mid Luteal: 18.0–87.9<br>Pregnancy:<br>1st trimester: 27.0–141.0<br>2nd trimester: 51.0–438.0<br>3rd trimester: 165.0–765.0   | nmol/L   |
| Prolactin                       | Males: 0.6–19<br>Females: 0.6–20   | ng/mL    |
| Testosterone (SHY)              | Males: 10.00–42.00<br>Females: less than 2.8   | nmol/L   |
| Thyroglobulin                   | 3.0-40.0   | ng/mL    |
| Thyroglobulin antibody          | Less than 20   | IU/mL    |
| Total T3 (PUH) Triiodothyronine | <b>Female:</b><br>0D: 0.48-1.77<br>1M: 0.73-2.21<br>1Y: 1.26-2.16<br>6Y: 1.10-1.95<br>11Y: 1.04-1.84<br>16Y: 1.01-1.51<br>18Y: 0.60-1.81<br><b>Male:</b><br>0D: 0.51-1.84<br>1M: 1.03-2.29<br>1Y: 0.93-2.13<br>6Y: 1.04-1.98<br>11Y: 0.88-1.76<br>16Y: 0.86-1.76<br>18Y: 0.60-1.81 | ng/mL    |
| Total T4 (Thyroxine)            | 0D: 1.0-38.9<br>5D: 3.0-20.0<br>14D: 1.7-9.1<br>147D: 0.8–8.2<br>25M: 0.7–5.7<br>20Y: 0.30–5.0   | µg/dL    |
| Free T4 (analog-PUH)            | Euthyroid: 0.89-1.76<br>Hypothyroid: less than 0.89<br>Hyperthyroid: greater than 1.78<br>Females    Normal Range    Median<br>1st Trimester: 0.78-1.48    1.28<br>2nd Trimester: 0.78-1.48    1.00<br>3rd Trimester: 0.68-1.41    0.95  | ng/dL    |
| T3 Uptake (SHY)                 | 22.5-37.0  | No units |

| Test                                | Reference Range  | Units   |
|-------------------------------------|--|---------|
| Serum/Plasma                        |  |         |
| TSH (Thyroid Stimulating Hormone)   | 0D: 1.0-38.9<br>5D: 3.0-20.0<br>14D: 1.7-9.1<br>147D: 0.8-8.2<br>25M: 0.7-5.7<br>20Y: 0.30-5.0 | µIU/mL  |
| Acetaminophen                       | Therapeutic: 10 – 20<br>Hepatotoxic:<br>4 hours post ingestion: greater than 150               | µg/mL   |
| Salicylate (SHY)                    | Therapeutic: 15-30   | mg/dL   |
| Carbamazepine                       | 4.0-12.0   | µg/mL   |
| Digoxin                             | 1.0-2.0  | ng/mL   |
| Gentamicin                          | Peak: 6.0-10.0<br>Trough: 0.5-2.0  | µg/mL   |
| Lithium                             | 0.6-1.5  | mmol/L  |
| Methotrexate                        | None established   | umol/L  |
| Phenobarbital                       | 10.0-40.0  | µg/mL   |
| Phenytoin (Dilantin)                | 0D: 6-14<br>1Y: 10-20  | µg/mL   |
| Free Phenytoin                      | 1.0-2.0  | µg/mL   |
| Tobramycin (SHY)                    | Peak: 6.0-10.0<br>Trough: 0.5-2.0  | µg/mL   |
| Valproic Acid                       | Peak: 50-150   | µg/mL   |
| Vancomycin                          | Trough: 10-20  | µg/mL   |
| VLDL (very low density lipoprotein) | Less than or equal to 40   | mg/dL   |
| Osmolality                          | 281-307  | mOsm/Kg |



| Test                                | Reference Range  | Units           |
|-------------------------------------|--|-----------------|
| Cerebrospinal Fluid (CSF) Test      | Reference Range  | Units           |
| CSF Glucose                         | 40-75  | mg/dL           |
| CSF Lactate                         | 0.9-2.8  | mmol/L          |
| CSF Protein                         | OD: 40-120<br>1M: 15-45  | mg/dL           |
| Urine Drugs of Abuse Test           | Reference Range  | Units           |
| Benzodiazepines (SHY)               | Negative   | N/A             |
| Amphetamines (SHY)                  | Negative   | N/A             |
| Benzoylcegonine (SHY) Cocaine Metab | Negative   | N/A             |
| Barbiturates (SHY)                  | Negative   | N/A             |
| Opiates (SHY)                       | Negative   | N/A             |
| Phencyclidine (SHY) PCP             | Negative   | N/A             |
| 6-Acetylmorphine (SHY)              | Negative   | N/A             |
| Buprenorphine (SHY)                 | Negative   | N/A             |
| Oxycodone (SHY)                     | Negative   | N/A             |
| Methadone (SHY)                     | Negative   | N/A             |
| Cannabinoid (SHY) THC               | Negative   | N/A             |
| Urine Test                          | Reference Range  | Units           |
| Urine Albumin                       | Less than 1.9  | mg/dL           |
| Albumin/Creatinine ratio            | Less than 30   | mg/g creatinine |
| Urine Urea Nitrogen                 | 7000-160000  | mg/24 hr        |
| Urine Calcium                       | 100-300  | mg/24 hr        |
| Urine Phosphorus                    | 400-1300   | mg/24 hr        |
| Urine Uric Acid                     | 250-750  | mg/24 hr        |
| Urine Sodium                        | 40-220   | mmol/24 hr      |
| Urine Potassium                     | 25-125   | mmol/24 hr      |
| Urine Amylase                       | Less than or equal to 30   | IU/24 hr        |
| Urine Creatinine                    | Female: 800-1500<br>Male: 1300-1800  | mg/24 hr        |
| Creatinine Clearance                | Female: 88-128<br>Male: 97-137   | mL/min          |
| Urine/Serum $\beta$ hCG             | Female: (non-pregnant) Negative<br>Female: (pregnant) Positive<br>Male: Negative | N/A             |
| Urine Osmolality                    | 50-1400  | mOsm/Kg         |
| Urine Total Protein                 | 42-225   | mg/24 hr        |

| Test                     | Reference Range | Units   |
|--------------------------|-----------------|---------|
| Urine Test               | Reference Range | Units   |
| Urine Color              | Yellow          | N/A     |
| Urine Character          | Clear           | N/A     |
| Urine Specific Gravity   | 1.001-1.035     | N/A     |
| Urine pH                 | 4.6-8           | N/A     |
| Urine Protein            | Negative        | N/A     |
| Urine Ketone             | Negative        | N/A     |
| Urine Glucose            | Negative        | N/A     |
| Urine KEtone             | Negative        | N/A     |
| Urine Bilirubin          | Negative        | N/A     |
| Urine Blood              | Negative        | N/A     |
| Urine Urobilinogen       | Normal          | N/A     |
| Urine Nitrite            | Negative        | N/A     |
| Urine Leukocyte Esterase | Negative        | N/A     |
| Urine WBC's              | 0-5             | Per HPF |
| Urine RBC's              | 0-3             | Per HPF |
| Urine Epithelial Cells   | 0               | Per HPF |
| Urine Bacteria           | None seen       | Per HPF |
| Urine Crystals           | None seen       | Per HPF |
| Hyaline Casts            | 0-2             | Per HPF |

| Test  | Reference Range   | Units  |
|---|---|--------|
| Blood Gas (whole Blood Specimens)                     | Reference Range   | Units  |
| pH  | Arterial: 7.35-7.45<br>Venous: 7.32-7.43                                  | N/A    |
| pCO <sub>2</sub> (Partial pressure of carbon dioxide) | Arterial: 35-45<br>Venous: 41-51  | mm/Hg  |
| pO <sub>2</sub> (Partial pressure of oxygen)          | Arterial: 80-100<br>Venous: 30-50   | mm/Hg  |
| FO <sub>2</sub> HB (Fraction of oxyhemoglobin)        | Arterial: 95-99<br>Venous: 70-85  | %      |
| iCa (Ionized Calcium)                                 | 1.15-1.29   | mmol/L |
| Glucose (whole blood)                                 | less than 1M: 40-99   | mg/dL  |
| Sodium (whole blood)                                  | 136-146   | mmol/L |
| Potassium (whole blood)                               | 3.5-5.0   | mmol/L |
| Lactate (whole blood)                                 | 0.5-1.6   | mmol/L |
| COHb (Carboxyhemoglobin)                              | Non-Smokers: less than or equal to 2<br>Smokers: less than or equal to 10 | %      |
| MetHb (Methemoglobin)                                 | 0.0-1.5   | %      |
| tHb (total hemoglobin)                                | Female: 12.0-16.0<br>Male: 13.5-17.5                                      | g/dL   |
| HCO <sub>3</sub> (Bicarbonate)                        | Arterial: 22-26<br>Venous: 19-25  | mg/L   |
| Base Excess/Bass Deficient                            | 0 +/- 2   | N/A    |
| O <sub>2</sub> saturation (oxygen saturation)         | Arterial: 95-99<br>Venous: 70-85  | %      |
| a-vO <sub>2</sub> (arteriovenous oxygen difference)   | 4-6   | VOL%   |
| O <sub>2</sub> Content (oxygen content)               | Arterial: 15-20<br>Venous: 12-17  | VOL%   |
| Creatinine (whole blood)                              | 0.5-1.4   | mg/dL  |
| Chloride (whole blood)                                | 98-107  | mmol/L |

**Lipoprotein Reference Ranges for Adult Population (Age >=20). National Cholesterol Education Program, ATP III Classification**

|                   |   |       |
|-------------------|---|-------|
| Triglyceride      | Normal: less than 150<br>Borderline High: 150-199<br>High: 200-499<br>Very High: greater than or equal to 500   | mg/dL |
| Total Cholesterol | Desirable: less than 200<br>Borderline High: 200-239<br>High: greater than or equal to 240  | mg/dL |
| HDL               | Low: less than 40<br>High: greater than or equal to 60  | mg/dL |
| LDL               | Optimal: less than 100<br>Near Optimal/Above Optimal: 100-129<br>Borderline High: 130-159<br>High: 160-189<br>Very High: Greater than or equal to 190 | mg/dL |

| Test   | Reference Range   | Units |
|--|---|-------|
| <b>Pediatric (2-19 years) Lipid Reference Ranges For Cardiovascular Disease Risk</b> |   |       |
| Total Cholesterol  | Acceptable: Less than 170<br>Borderline High Risk: 170-199<br>High Risk: Greater than or equal to 200   | mg/dL |
| LDL Cholesterol  | Acceptable: Less than 110<br>Borderline High Risk: 110-129<br>High Risk: Greater than or equal to 130   | mg/dL |
| HDL Cholesterol  | Acceptable: Greater than 45<br>Borderline Risk: 40-45<br>High Risk: Less than 40  | mg/dL |
| Triglyceride   | Acceptable 0D-9Y: less than 75<br>Acceptable 10Y-19Y: less than 90<br>Borderline High Risk 0D-9Y: 75-99<br>Borderline High Risk 10Y-19Y: 90-129<br>High Risk 0D-9Y: greater than or equal to 100<br>High Risk 10Y-19Y: greater than or equal to 130 | mg/dL |

| Test                   | Reference Range   | Units      |
|------------------------|---|------------|
| Hematology Test        | Reference Range   | Units      |
| Hemoglobin             | Female: 11.6-14.6<br>Male: 12.9-16.9                    | g/dL       |
| Hematocrit             | Female: 34.1-43.3<br>Male: 38.0-48.8                    | %          |
| WBC                    | 3.8-10.6  | x 10E+9/L  |
| RBC                    | Female: 3.73-4.89<br>Male: 4.13-5.57                    | x 10E+12/L |
| MCV                    | 82.6-97.4   | fL         |
| MCH                    | 27.8-33.4   | pg         |
| MCHC                   | 32.7-35.5   | g/dL       |
| MPV                    | 6.8-10.4  | fL         |
| RDW                    | 11.8-15.2   | %          |
| Polys (neutrophils)    | 44-77   | %          |
| Bands (neutrophils)    | 0-5   | %          |
| Lymphs                 | 13-44   | %          |
| Monos                  | 4-13  | %          |
| Eos                    | 0-6   | %          |
| Basos                  | 0-1   | %          |
| Myelocytes             | 0   | %          |
| Metamyelocytes         | 0   | %          |
| Promyelocytes          | 0   | %          |
| ABS Poly               | 2.24-7.68   | x 10E+09/L |
| ABS Lymphocytes        | 0.80-3.65   | x 10E+09/L |
| ABS Monocytes          | 0.30-0.90   | x 10E+09/L |
| ABS Eosinophils        | 0.00-0.40   | x 10E+09/L |
| ABS Basophils          | 0.00-0.06   | x 10E+09/L |
| ABS Bands              | 0.10-0.80   | x 10E+09/L |
| ABS Myelocytes         | 0   | x 10E+09/L |
| ABS Metamyelocytes     | 0   | x 10E+09/L |
| ABS Promyelocytes      | 0   | x 10E+09/L |
| ABS Bands              | 0   | x 10E+09/L |
| Reticulocytes          | 0.4-2.4   | %          |
| Absolute Reticulocytes | 0.018-0.158   | x 10E+12/L |
| Sedimataion Rate (ESR) | 18Y: Female 0-40 Male 0.23<br>0D: Female 0-20 Male 0-18 | mm/hr      |
| Sickle Cell Screen     | Negative  | N/A        |
| Monospot               | Negative  | N/A        |
| Gastric Occult         | Negative  | N/A        |
| Fluid Crystals         | Negative  | N/A        |

| Test   | Reference Range                   | Units            |
|--|-----------------------------------|------------------|
| Synovial Fluid - Appearance                  | Yellow, Clear, or slightly cloudy | N/A              |
| Synovial Fluid - RBC's                       | 0-2000                            | /mm <sup>3</sup> |
| Synovial Fluid - Nucleated Cells             | 13-180                            | /mm <sup>3</sup> |
| Synovial Fluid - Neutrophils                 | 0-25                              | %                |
| Synovial Fluid - Lymphocytes                 | 0-78                              | %                |
| Synovial Fluid - Monocytes                   | 0-71                              | %                |
| Synovial Fluid - Mononuclear                 | 0-26                              | %                |
| Pleural - Nucleated Cells                    | 1395-3734                         | /mm <sup>3</sup> |
| Pleural - Macrophages                        | 64-80                             | %                |
| Pleural - Lymphocytes                        | 18-36                             | %                |
| Pleural - Neutrophils                        | 0-1                               | %                |
| Pleural - Mesothelial                        | 0-2                               | %                |
| Peritoneal Dialysate Fluid - RBC's           | 24 +/- 48                         | /ul              |
| Peritoneal Dialysate Fluid - Nucleated Cells | 36 +/- 48                         | /ul              |
| Peritoneal Dialysate Fluid - Leukocytes      | 21 +/- 27                         | /ul              |
| Peritoneal Dialysate Fluid - Neutrophils     | 18 +/- 16                         | %                |
| Peritoneal Dialysate Fluid - Lymphocytes     | 24 +/- 26                         | %                |
| Peritoneal Dialysate Fluid - Monocytes       | 35 +/- 26                         | %                |
| Peritoneal Dialysate Fluid - Eosinophils     | 7 +/- 7                           | %                |
| Peritoneal Dialysate Fluid - Basophils       | 3 +/- 2                           | %                |
| Cerebrospinal Fluid - Appearance             | Clear                             | N/A              |
| Cerebrospinal Fluid - Supernatant            | Colorless                         | N/A              |
| Cerebrospinal Fluid - RBC's                  | 0-5                               | /mm <sup>3</sup> |
| Cerebrospinal Fluid - Nucleated Cells        | 0-5                               | /mm <sup>3</sup> |
| Cerebrospinal Fluid - Lymphocytes            | 63-99 (0.63-0.99)                 | %                |
| Cerebrospinal Fluid - Monocytes              | 3-37 (0.03-0.37)                  | %                |
| Cerebrospinal Fluid - Histiocytes            | Rare                              |                  |
| Cerebrospinal Fluid - Neutrophils            | 0-2 (0.00-0.02)                   | %                |
| BAL Fluid - Alveolar macrophages             | greater than 85                   | %                |
| BAL Fluid - Lymphocytes                      | 10-15                             | %                |
| BAL Fluid - Neutrophils                      | less than 3                       | %                |
| BAL Fluid - Eosinophils                      | less than 1                       | %                |

No Definitive Reference Ranges determined for peritoneal, amniotic and pericardial fluids

| Test                            | Reference Range  | Units |
|---------------------------------|--|-------|
| WBC Differential Count - Poly   | 1D: 32-62<br>1W: 28-43<br>1M: 19-39<br>6M:14-34<br>2Y: 12-34<br>6Y: 26-48<br>12Y: 31-61<br>17Y: 37-67<br>18Y: 44-77  | %     |
| WBC Differential Count - Bands  | 1D: 12-18<br>1W: 8-14<br>1M: 8-14<br>6M:6-12<br>2Y: 4-10<br>6Y: 2-8<br>12Y: 2-8<br>17Y: 2-8<br>18Y: 0-5              | %     |
| WBC Differential Count - Eos    | 1D: 0-3<br>1W: 0-3<br>1M: 0-3<br>6M: 0-3<br>2Y: 0-3<br>6Y: 0-3<br>12Y: 0-3<br>17Y: 0-3<br>18Y: 0-6                   | %     |
| WBC Differential Count - Baso   | 1D: 0-2<br>1W: 0-2<br>1M: 0-2<br>6M:0-2<br>2Y: 0-2<br>6Y: 0-2<br>12Y: 0-2<br>17Y: 0-2<br>18Y: 0-1                    | %     |
| WBC Differential Count - Lymphs | 1D: 26-36<br>1W: 20-50<br>1M: 33-63<br>6M: 41-71<br>2Y: 45-75<br>6Y: 35-65<br>12Y: 28-48<br>17Y: 25-45<br>18Y: 13-44 | %     |

| Test                           | Reference Range   | Units              |
|--------------------------------|---|--------------------|
| WBC Differential Count - Monos | 1D: 3-9<br>1W: 4-12<br>1M: 4-12<br>6M: 3-9<br>2Y: 2-8<br>6Y: 3-9<br>12Y: 3-9<br>17Y: 3-9<br>18Y: 4-13 | %                  |
| Reticulocyte                   | Newborn: 3.0-7.0<br>1D: 1.0-4.6<br>6D: 0.1-1.9<br>50D: 0.4-2.8<br>85D: 0.4-2.4                        | %                  |
| Absolute Reticulocyte          | Newborn: Unavailable<br>1D: Unavailable<br>6D: Unavailable<br>50D: Unavailable<br>85D: 0.018-0.158    | $\times 10^{12}/L$ |
| Immature Reticulocyte Fraction | 0.17-0.51   |                    |
| Platelet                       | 0D: 145-450<br>32D: 140-450<br>18Y: 156-369   | $\times 10^9/L$    |



| Test                              | Reference Range   | Units     |
|-----------------------------------|---|-----------|
| Fibrinogen                        | 1D: 192-374<br>3D: 283-401<br>1M: 82-383<br>1Y: 162-401<br>6Y: 199-409<br>11Y: 212-433<br>16Y: 216-494                | mg/dL     |
| D-dimer                           | Less than 0.50  | ug/mL FEU |
| Closure Time                      | Collagen/ADP: 65-117<br>Collagen/EPI: 84-175  | Seconds   |
| INR                               | 1D: 1.2-1.4<br>3D: 1.1-1.4<br>1M: 0.9-1.2<br>1Y: 0.9-1.2<br>6Y: 0.9-1.2<br>11Y: 1.0-1.3<br>16Y: 0.8- 1.2              | N/A       |
| Prothrombin Time (PT)             | 1D: 14.4-16.4<br>3D: 13.5-16.4<br>1M: 11.5-15.3<br>1Y: 12.1-14.5<br>6Y: 11.7-15.1<br>11Y: 12.7-16.1<br>16Y: 11.8-14.4 | Seconds   |
| Partial Thromboplastin Time (PTT) | 1D: 34.3-44.8<br>3D: 29.5-42.2<br>1M: 35.1-46.3<br>1Y: 33.6-43.8<br>6Y: 31.8-43.7<br>11Y: 33.9-46.1<br>16Y: 23.0-33.8 | Seconds   |
| Thrombin Time (SHY)               | 14.5-18.4   | Seconds   |
| Aspirin Response                  | Non-therapeutic baseline: 550-700<br>Therapeutic response to aspirin: 350-549   | ARU       |
| Plavix Response                   | Normal Baseline range: 194-418  | Base PRU  |
| LMW Heparin                       | Call Pharmacy   | lμ/mL     |
| UF Heparin                        | Call Pharmacy   | lμ/mL     |
| Acetone                           | Negative  |           |
| Kleihauer Betke Fetal HGB         | Less than 0.04  | %         |
| Kleihauer Betke Fetal Bleed       | Less than 2.00  | mL        |
| Fetal APT Test                    | Negative  |           |

| Test                   | Reference Range   | Units               |
|------------------------|---|---------------------|
| White Blood Cell (WBC) | 1D: 9.0-38.0<br>1W: 5.0-21.0<br>2W: 5.0-20.0<br>4W: 5.0-19.5<br>2M: 6.0-17.5<br>3M: 6.0-17.5<br>6M: 6.0-17.5<br>2Y: 5.0-17.0<br>6Y: 4.5-14.5<br>12Y: 4.5-13.0<br>18Y: 3.8-10.6  | $\times 10^9 /L$    |
| Hemoglobin (HGB)       | 1D: 13.5-21.0<br>1W: 13.5-21.0<br>2W: 12.5-20.2<br>4W: 10.0-18.0<br>2M: 9.0-14.0<br>3M: 9.5-13.5<br>6M: 10.5-13.5<br>2Y: 11.5-13.5<br>6Y: 11.5-15.5<br>12Y: Female-12.0-16.0 Male-13.5-17.5<br>18Y: Female-11.6-14.6 Male-12.9-16.9   | g/dL                |
| Hematocrit (HCT)       | 1D: 42.0-60.0<br>1W: 42.0-66.0<br>2W: 39.0-63.0<br>4W: 31.0-55.0<br>2M: 28.0-42.0<br>3M: 29.0-41.0<br>6M: 33.0-39.0<br>2Y: 34.0-40.0<br>6Y: 35.0-45.0<br>12Y: Female-36.0-46.0 Male-37.0-49.0<br>18Y: Female-34.1-43.3 Male-38.0-48.8 | %                   |
| Red Blood Cell (RBC)   | 1D: 3.9-6.60<br>1W: 3.90-6.30<br>2W: 3.60-6.20<br>4W: 3.00-5.40<br>2M: 2.70-4.90<br>3M: 3.10-4.50<br>6M: 3.70-5.30<br>2Y: 3.90-5.30<br>6Y: 4.00-5.20<br>12Y: Female-4.10-5.20 Male-4.50-5.30<br>18Y: Female-3.73-4.89 Male-4.13-5.57  | $\times 10^{12} /L$ |

| Test                                     | Reference Range  | Units |
|--|--|-------|
| Mean Corpuscular Volume (MCV)            | 1D: 98-118<br>1W: 88-126<br>2W: 86-124<br>4W: 85-123<br>2M: 77-115<br>3M: 74-108<br>6M: 70-86<br>2Y: 75-87<br>6Y: 77-95<br>12Y: 78-102<br>18Y: 82.6-97.4 | fL    |
| Mean Corpuscular Hemoglobin (MCH)        | 1D: 35-39<br>1W: 33-41<br>2W: 31-39<br>4W: 29-35<br>2M: 29-35<br>3M: 27-33<br>6M: 27-33<br>2Y: 25-31<br>6Y: 24-30<br>12Y: 38-32<br>18Y: 37.8-33.4        | pg    |
| Mean Corpuscular Hemoglobin Conc. (MCHC) | 1D: 32-35<br>1W: 31-35<br>2W: 31-35<br>4W: 31-35<br>2M: 31-35<br>3M: 31-35<br>6M: 31-35<br>2Y: 31-35<br>6Y: 31-35<br>12Y: 31-36<br>18Y: 32.7-35.5        | g/dL  |