

## Critical Values In Medical Laboratory

### Chemistry Critical Values

Test	Lower Limit	Upper Limit
Ammonia	None	>50 $\mu$ mol /L
Amylase	None	>250 IU/L
Bilirubin Total,Adult	None	>18 mg/dL
Bilirubin Total ,Cord Blood	None	>1.9 mg/dL
Bilirubin direct, Premature	None	>1.8 mg/dL
Bilirubin Total, Premature	None	>15 mg/dL
Bilirubin Total, Neonatal	None	>15 mg/dL
$\beta$ HCG, Serum	None	>5 IU/L On Female Less Than16 Years
$\beta$ HCG , Urine	None	Positive On Female Less Than16 Years
Calcium	< 6.6 mg/dL	>12.9 mg/dL
Calcium, Premature	< 7 mg/dL	>11 mg/dL
Chloride	< 80 mmol/L	>120 mmol/L
CK	None	>500 U/L
CK-MB	None	>15.0 ng/mL
Cortisol (Not On Dexametasone)	< 140 nmol/L	None
Creatinine	None	>5 mg/dL
Creatinine , Premature	None	>1.6 mg/dL
CO2	< 11 mmol/L	>39 mmol/L
CSF Glucose	< 40 mg/dL	>200 mg/dL
CSF Protein	None	$\geq$ 70 mg/dL
Digoxin	None	>2.5 ng/mL
Glucose	< 50 mg/dL	>450 mg/dL
Glucose, Premature	< 40 mg/dL	>200 mg/dL
Lactic Acid (Lactate)	None	> 3.4 mmol/L
Lead	None	>7 umol /L
Lipase	None	>80 IU/L
Lithium	None	>1.5 mEq/L
Magnesium	< 1.2 mg/dL	>3.9 mg/dL
Methemoglobin	None	> 5 %
Osmolality	< 251 mOsm/kg	>324 mOsm/kg
pCO2	< 30 mmHg	>50 mmHg
PH	< 7.21	>7.55
Phenobarbital	None	>45 ug/mL
Phosphorus	< 1.2 mg/dL	>7.5 mg/dL
Phosphorus ,0-30 day	< 3 mg/dL	>35 mg/dL
Potassium	< 2.8 mEq/L	>6.0 mEq/L
Potassium (Hemolyzed)	< 2.8 mEq/L	>8.0 mEq/L
Potassium, Premature	< 3.0 mEq/L	>6.5 mEq/L
pO2	< 46 mmHg	>100 mmHg
Sirolimus	None	>30 $\mu$ g/L
Sodium	< 125 mEq/L	> 160 mEq/L
Sodium, Premature	< 125 mEq/L	>150 mEq/L
Troponin I	None	>0.10 ng/mL
TSH (ED Only)	None	>150.0 uIU/mL

TSH <4 days	< 1.0 mU/L	>20 mU/L
TSH 4 days- 2 Years	None	>10 mU/L
T4 (Free) 0-2 Years	< 6 pmol/L	>50 pmol/L
T4 (Free) >2 Years	< 2 pmol/L	None
T4 ,Adult	None	>18.0 ug/dL
T4 ,Newborns	< 3.5 ug/dL	>18.0 ug/dL
Urea	None	>214 mg/dL
Urea , Premature	None	>107 mg/dL
Valproic Acid	None	>140 ug/mL

### Hematology Critical Values

<b>Blasts</b>	Any Present in Non-Oncology Patients	Any Present in Non-Oncology Patients With No Blasts Previously
<b>D - Dimer</b>	None	≥ 500 ng/mL
<b>Fibrin Degradation Products (FDP)</b>	None	≥20ug/mL
<b>Fibrinogen</b>	≤ 100 mg/d l	>800 mg/dL
<b>Hematcrit (Hct)</b>	< 21 %	>60 %
<b>Hemoglobin (Hgb)</b>	≤ 7 g/dL	≥20 g/dL
<b>Hemoglobin (Hgb), 0-1 day</b>	≤ 10.8 g/dL	≥ 22.5 g/dL
<b>Hemoglobin (Hgb), 1-3 day</b>	≤ 10.5 g/dL	≥ 25.0 g/dL
<b>Hemoglobin (Hgb), 3-14 day</b>	≤ 10.4 g/dL	≥ 22.5 g/dL
<b>Hemoglobin (Hgb), 14-30 day</b>	≤ 7.0 g/dL	≥ 22.0 g/dL
<b>Hemoglobin (Hgb) ,1months - 12 years</b>	≤ 7.0 g/dL	≥ 18.0 g/dL
<b>Platelet Count</b>	≤ 30 k/cmm	≥ 950 k/cmm
<b>White Blood Cell Count</b>	≤ 2.0 k/cmm	≥ 25 k/cmm
<b>White Blood Cell Count , 0-3 day</b>	≤ 2.0 k/cmm	≥ 34 k/cmm
<b>White Blood Cell Count , 3-14 day</b>	≤ 2.0 k/cmm	≥ 25 k/cmm
<b>CSF White Blood Cell Count</b>	None	>10 cells/uL
<b>Non - Therapeutic INR</b>	None	≥ 1.8
<b>Therapeutic INR</b>	None	≥ 4.9
<b>Prothrombin Time</b>	None	> 24 Seconds
<b>Prothrombin Time, 0-6 months</b>	≤ 9.9 Seconds	≥ 25 Seconds
<b>Non - Therapeutic APTT</b>	≤ 18 Seconds	> 50 Seconds
<b>Therapeutic APTT</b>	≤ 20 Seconds	>100 Seconds
<b>APTT Pediatric, 0-6 months</b>	≤ 18 Seconds	≥ 61 Seconds
<b>Newborn Positive Direct Coombs Test (DAT)</b>		

### Microbiology Critical Values

Test	Critical Value Notification
<b>Blood Culture</b>	Positive Smear Or Culture
<b>Cerebrospinal Fluid(CSF) Exam</b>	Positive Smear Or Culture
<b>Acid Fast Bacili - AFB</b>	Positive Smear Or Culture
<b>Herpes Culture</b>	Positive Culture From Female Genital Specimen
<b>Genital Culture</b>	Positive Culture For Neisseria Gonorrhoeae And GroupB Strep From Inpatient /OB Genital , Placenta
<b>Cryptococcal Antigens</b>	Positive

<b>Hepatitis Surface Antigen</b>	Positive Postpartum Within 24 hrs
<b>Positive Tissue Cultures ( Liver,Bine Biopsies,ets.)</b>	
<b>Beta - Hemolytic Streptococci,Group A From Sterile Sites</b>	
<b>Neisseria Gonorrhoeae From Eyes</b>	
<b>Clostridium Botulinum, Clostridium Perfringenes, Clostridium Tetanus</b>	
<b>Coryneacterium Diptheriae</b>	
<b>Legionella Species</b>	
<b>Listeria Species</b>	
<b>Positive Modified Acid Fast And Ziehl- Neelsen Stains</b>	
<b>Unusually Resistant Organisms Including:</b>	
<b>*Vancomycin Resistant Entrococci (VRE)</b>	
<b>*Methicilin Resistant Staphylococcus Aureus (MRSA)</b>	
<b>*Multiply Resistant Gram Negatve Or Any Other Highly Resistant Organism Or Organism With Unusual Susceptibility Pattern.On Blood/Sterile Fluids/Wound/ANO2/Screening Swabs,BAL,Tracheal Aspirates</b>	
<b>*Extended Spectrum Beta Lactamases (ESBLs)</b>	
<b>*Glycopeptide Intermediate StaphylococcusAureus (GISA) Borderline Oxacilin Resistant StaphylococcusAureus (BORSA)</b>	
<b>All Notifiable Disease Isolates</b>	
<b>Cryptococcus Neoformans</b>	
<b>Zygomycetes From Sinus/Eye Specimens</b>	
<b>Vitreous Fluids From Eyes(Positive And Negative Report From Slide Preparations)</b>	
<b>Blastomyces Dermatidis.Histoplasma Capsulatum,Coccidioides Immitis,Paracoccidoides Bbrasilensis,Sporothrix Schenkii,Penicilium Marneffi</b>	
<b>Level III Organisms:</b>	
<b>Bacillus Anthracis,Brucella spp.,Francisella spp.,Yersinia Pestis</b>	
<b>Stenotrophomonas Maltophilia : Non - Sterile Sites</b>	
<b>Stool Pathogens Including SalmonellaShigella,Yersinia,Campylobacter spp.,Clostridium Difficile,E-Coli 0157:H7,Vibrio spp.,Rotavirus</b>	
<b>All Positive And/Or Stat Malaria Tests</b>	
<b>PCP- Pneumocystis Jirovecii (Carnii)</b>	
<b>RSV,Infkuenzae A; All Positive Results</b>	
<b>Varicella Zoster Virus: All Positive Results</b>	
<b>Parasites: Cyclospora spp.,Giardia,Entamoeba Histolytica,Cryptosporidium spp.Acanthomoeba,Parasitic Ova,Worm,,Proglottid,And Larvae</b>	

### **Urine Analysis Critical Values**

<b>Spermatozoa</b>	Female Less Than 16 Years
<b>Any RBC Casts</b>	
<b>Any WBC Casts</b>	
<b>Myoglobin</b>	Positive
<b>Porphobilinogen</b>	Positive
<b>Pediatric &lt;2 Years : Positive For Reducing Substance</b>	
<b>Children &lt;7 Years : Positive For Glucose</b>	

**Reference:**

**\*Sanford Laboratories.**

[www.svclinlabs.org/Testing/CriticalValues](http://www.svclinlabs.org/Testing/CriticalValues)

**\*The University Of Kansas Hospital.**

**\*MGH Clinical Laboratory.**

<http://mghlabtest.org/CriticalValues.htm>

**\*Rush University Medical Center.**

[www.rush.edu/webapps/rml/RMLClinicalChemCV.jsp](http://www.rush.edu/webapps/rml/RMLClinicalChemCV.jsp)

**\*UC Davis Health System.**

[www.ucdmc.ucdavis.edu/pathology/services/clinical/clinical\\_pathology](http://www.ucdmc.ucdavis.edu/pathology/services/clinical/clinical_pathology)

**\*BC Biomedical Laboratory LTD. http://**

[www.Bcbio.com/bcbiomedical-inside.aspx](http://www.Bcbio.com/bcbiomedical-inside.aspx)

**\*American Society For Clinical Pathology**

**\*Department Of Laboratory Medicine Washington.**

<http://depts.washington.edu/labweb/test/panic.html>

**Care Group Healthcare System.**

[http://caregroup.org/departments/pathology/lab\\_manual/PML\\_critical\\_values.htm](http://caregroup.org/departments/pathology/lab_manual/PML_critical_values.htm)

**\*Covenant Laboratory.**

[http://www.covenantlab.com/critical\\_values.html](http://www.covenantlab.com/critical_values.html)

**\*Alberta Health Services.**

<http://calgarylabservices.com/LabTest/CriticalValues.htm>

**\*The Ohio State University Medical Center Department Of Clinical Laboratories.**