



**UNIVERSITY OF COLORADO HOSPITAL and CHERRY CREEK MEDICAL CENTER LABORATORIES
CRITICAL LABORATORY VALUES LIST**

CRITICAL TESTS: “Critical tests” are called to the caregiver regardless of the result obtained. The Clinical Laboratory does not currently define any tests as "critical."

CRITICAL VALUES:

TEST	LOW Less than: <, Less than or equal to: ≤	HIGH Greater than: >, Greater than or equal to: ≥
Absolute Neutrophil Count (<i>See table below for Hepatology Clinic and Oncology exceptions.</i>)	<1.0 x 10 ⁹ /L	
Acetaminophen		≥40.0 ug/mL
AFB Culture or Smear, Cerebrospinal Fluid		Positive
Amikacin trough		>10 ug/mL
Antithrombin III Activity	<20 %	
APTT		>159 seconds
Bicarbonate (HCO ₃), arterial blood gas	≤12 mmol/L	≥40 mmol/L
Bilirubin, total (newborns 0-1 month)		≥20.0 mg/dL
Blood Culture		Positive
Blood culture, blood product associated with transfusion reaction		Positive
Blood parasites (Malaria, Babesia, Microfilaria, Trypanosomes, etc.)		Positive
Calcium	<6.0 mg/dL	>12.0 mg/dL
Carbamazepine		≥15.0 ug/mL
Carboxyhemoglobin		≥12%
CO ₂	≤9 mmol/L	≥40 mmol/L
CO ₂ , total (tCO ₂), arterial blood gas	≤12 mmol/L	≥40 mmol/L
Coagulation Factor Activities (II, V, VII, VIII, IX, X, XI, XII and vWF)	<20 %	
Cryptococcal Antigen		Positive
Culture, following sources: <ul style="list-style-type: none"> • Any source (Acanthamoeba, Naegleria, Balamuthia, Nocardia, partial acid fast organisms only) • Blood • CSF • Eye (Gram negative rod only) 		Positive
Cyclosporine		>400 ng/mL
Digoxin		≥3.0 ng/mL
Ethanol		≥400 mg/dL

TEST	LOW Less than: <, Less than or equal to: ≤	HIGH Greater than: >, Greater than or equal to: ≥
Ethylene glycol		≥3 mg/dL
Factor Inhibitors		>0.5 %
Fibrinogen	<100 mg/dL	
Gentamicin, trough		≥2.00 ug/mL
Gentamycin, peak and random		≥12.0 ug/mL
Glucose	≤40 mg/dL	≥500 mg/dL
Gram Stain, following sources: <ul style="list-style-type: none"> • Body fluids (ascites, CSF, paracentesis, peritoneal) • Tissues (brain, epidural, eye, heart) • Specimens submitted from Surgery • Blood products associated with transfusion reaction 		Positive
Hematocrit (<i>See table below for Hepatology Clinic and Oncology exceptions.</i>)	<21 % Results between 21.0% and 24.9% are critical if the prior result within 36 hours is > 9% difference.	>60%
Hemoglobin (<i>See table below for Hepatology Clinic and Oncology exceptions.</i>)	<7 g/dL Results between 7.0 and 7.9 g/dL are critical if the prior result within 36 hours is > 3.0 g/dL difference.	>20 g/dL
Heparin Associated Platelet Antibodies		Positive
Heparin Level		>1.2 U/mL
INR		>5.0
Ionized Calcium	≤0.75 mmol/L	≥1.66 mmol/L
Isopropanol		≥5 mg/dL
Ketones, urine (infants under 6 months old)		≥ 80 mg/dL
Lithium		> 1.5 mmol/L
Low Molecular Weight (LMW) Heparin Level		≥1.7 U/mL
Magnesium	≤1.2 mg/dL	≥6.0 mg/dL
Methanol		≥5 mg/dL
Methemoglobin		≥3.0
pCO ₂	≤20 mmHg	≥70 mmHg
PCR, following sources (viruses):		Positive

TEST	LOW Less than: <, Less than or equal to: ≤	HIGH Greater than: >, Greater than or equal to: ≥
<ul style="list-style-type: none"> • CSF • Blood (HSV, VZV, Parvovirus, Enterovirus) • Amniotic • Peritoneal • Pleural fluid • Eye including conjunctiva, aqueous vitreous • BAL (CMV, EBV, VZV) • Tissue biopsy other than skin 		
Pentobarbital		>50 ug/mL
PH, Arterial	≤7.200	≥7.600
Phenobarbital		≥50.0 ug/mL
Phenytoin		≥30.0 ug/mL
Phenytoin, Free		≥4.0 ug/mL
Phosphorus	≤1.0 mg/dL	
Plasminogen, age >6 months	<20 %	
Plasminogen, age 0-6 months	<10 %	
Platelets (<i>See table below for Hepatology Clinic and Oncology exceptions</i>)	<25 x 10 ⁹ /L Results between 25 and 49 x 10 ⁹ /L are critical if the prior result within 36 hours is > 100 x 10 ⁹ /L.	>600 x 10 ⁹ /L
PO ₂ , Arterial	≤39 mmHg	
Potassium	≤2.5 mmol/L	≥6.4 mmol/L
Protein C Activity, age >4 yrs	<20 %	
Protein C Activity, age 0-4 yrs	<10 %	
Protein C Clot	<20 %	
Protein S Clot	<20 %	
Protein S Free	<20 %	
Protein S Total	<20 %	
Reducing Substances (infants under 6 months old)		Positive
Salicylate		≥40.0 mg/dL
Sirolimus		>30 ng/mL
Sodium	≤120 mmol/L	≥160 mmol/L
Tacrolimus		>25 ng/mL
Theophylline		≥30.0 ug/mL
Tobramycin trough		≥2.0 ug/mL
Transfusion reaction investigation, hemolytic		Positive
Triglycerides		≥1500 mg/dL

TEST	LOW Less than: <, Less than or equal to: ≤	HIGH Greater than: >, Greater than or equal to: ≥
Triglycerides (Dermatology Clinic only)		≥800 mg/dL
Valproic Acid		≥150.0 ug/mL
Vancomycin, random and peak		≥80.0 ug/mL
Vancomycin, trough		≥35.0 ug/mL
WBC (<i>See table below for Hepatology Clinic and Oncology exceptions.</i>)	<1.5 x 10 ⁹ /L	>70 x 10 ⁹ /L

Critical Values - Hepatology Clinic and Oncology Patients Only

Results are always called

Platelets <25 x 10⁹/L or >600 x 10⁹/L

Hemoglobin <7 gm/dL or >20 gm/dL

Hematocrit <21% or >60%

Results called when criteria are met

WBC <1.5 x 10⁹/L or >70 x 10⁹/L

ANC <1.0 x 10⁹/L

WBC (White Blood Cell Count) and ANC (Absolute Neutrophil Count) are called to Hepatology Clinic and Oncology caregivers when:

1. It is the first time the critical value is detected on the patient.
2. The patient has not had a similar critical value within the previous 24 hours.
3. The test was not ordered in the previous 24 hours.
4. Previous result within 24 hours was not a critical value. (The patient's result has changed from a critical value to a non-critical value, then back to a critical value.)

Positive test results considered significant, but not defined as critical will be called to the caregiver on the same day that the results are available. These results are:

- D-dimer (Outpatients only; excludes patients in Emergency Department) ≥ 500 ng FEU/mL
- Positive AFB smears
- Positive AFB cultures other than *M. gordonae*
- Positive *Coccidioides immitis*, *Blastomyces dermatidis*, or *Histoplasma capsulatum* DNA probes
- Positive cultures for bacteria and fungus from body fluids and tissues (normally sterile sites)