MLabs
Expertise Delivered Personally

# Critical Value Table

The University of Michigan Health System (UMHS) has established critical values for the following tests; this Critical Value policy is approved by the UMHS Executive Committee on Clinical Affairs. MLabs will notify the client by telephone of results that are **less than** the specified Lower Limit or **greater than** the specified Upper Limit, immediately upon verification of result accuracy.

| Test Name | Units | Lower Limit | Upper Limit |
|---|---|---|---|
| **Chemistry** | | | |
| Bilirubin, Total (newborn) | mg/dL | - | 15 |
| Calcium | mg/dL | 6 | 14 |
| Calcium, Ionized | mmol/L | 0.75 | 1.55 |
| Carbon Dioxide, Total | mMol/L | 10 | 40 |
| Chloride | mMol/L | 80 | 130 |
| Chloride (newborn) | mMol/L | 90 | 120 |
| Glucose (adult) | mg/dL | 50 | 500 |
| Glucose (newborn) | mg/dL | 40 | 200 |
| Glucose, CSF | mg/dL | 30 | 300 |
| Lead, Blood | µg/dL | | 75 |
| Magnesium (obstetrics) | mg/dL | | 8 |
| Potassium | mMol/L | 2.5 | 6 |
| Potassium (newborn) | mMol/L | 2.5 | 6.5 |
| Sodium | mMol/L | 120 | 160 |
| **Drug Levels** | | | |
| Acetaminophen | µg/mL | - | 40 |
| Amikacin (peak or random) | µg/mL | - | 30 |
| Amikacin (trough) | µg/mL | - | 10.1 |
| Amitriptyline | ng/mL | - | 500 |
| Carbamazepine | µg/mL | - | 15 |
| Carbamazepine, Free | µg/mL | - | 3.5 |
| Clomipramine | ng/mL | - | 500 |
| Digoxin | ng/mL | - | 2.0 |
| Doxepin | ng/mL | - | 500 |
| Ethanol | mg/dL | - | 450 |
| Ethosuximide | µg/mL | - | 150 |
| Gentamicin (peak or random) | µg/mL | - | 10.5 |

| Test Name | Units | Lower Limit | Upper Limit |
|---|---|---|---|
| Gentamicin (trough) | µg/mL | - | 2.6 |
| Imipramine | ng/mL | - | 500 |
| Lidocaine | µg/mL | - | 7 |
| Lithium | mEq/L | - | 1.5 |
| N-Acetylprocainamide (NAPA) | µg/mL | - | 30 |
| Nortriptyline | µg/mL | - | 500 |
| Pentobarbital | µg/mL | - | 60 |
| Phenobarbital | µg/mL | - | 60 |
| Phenytoin | µg/mL | - | 30 |
| Primidone | µg/mL | - | 15 |
| Procainamide | µg/mL | - | 12 |
| Quinidine | µg/mL | - | 7 |
| Salicylate | mg/dL | - | 30 |
| Sirolimus | ng/mL | - | 30 |
| Tacrolimus | ng/mL | - | 30 |
| Theophylline | µg/mL | - | 25 |
| Tobramycin (peak or random) | µg/mL | - | 10.5 |
| Tobramycin (trough) | µg/mL | - | 2.6 |
| Valproic Acid | µg/mL | - | 150 |
| Valproic Acid, Free | µg/mL | - | 15 |
| Vancomycin (peak or random) | µg/mL | - | 60 |
| Vancomycin (trough) | µg/mL | - | 20.1 |
| Volatiles Group by GLC | | | |
| Acetone | mg/dL | - | 20 |
| Ethanol | mg/dL | - | 450 |
| Isopropanol | mg/dL | - | 340 |
| Methanol | mg/dL | - | 20 |
| Ethylene Glycol | mg/dL | - | 20 |
| **Coagulation** | | | |
| Anti-Xa, LMWH | IU/mL | - | 2.0 |
| Anti-Xa, UFH | IU/mL | - | 1.0 |

| Test Name | Units | Lower Limit | Upper Limit |
|---|---|---|---|
| Factor 8 Inhibitor Assay | Bethesda units | - | 0.5 (if no prior inhibitor present) |
| Factor 9 Inhibitor Assay | Bethesda units | - | 0.5 (if no prior inhibitor present) |
| Fibrinogen | mg/dL | 100 | - |
| PT (Prothrombin Time) | INR | - | 5.0 |
| PTT (Activated Partial Thromboplastin Time) | seconds | - | 100 |
| **Hematology** | | | |
| Differential Count (Outpatient)* | | Absolute Neutrophil Count <0.5 K/uL and/or presence of Blasts or suspicious cells | |
| Differential Count (Inpatient)* | | >5% Blasts or suspicious cells | |
| Hematocrit (Outpatient)* | % | 18 | 60 (age > 3 months) |
| Hematocrit (Inpatient)* | % | 15 | |
| Hemoglobin (Outpatient) | g/dL | 6 | 20 (age > 3 months) |
| Hemoglobin (Inpatient) | g/dL | 5 | |
| Platelet Count (Outpatient)* | K/uL | 20 | 1,000 |
| Platelet Count (Inpatient)* | K/uL | 10 | |
| White Blood Cell Count (Outpatient)* | K/uL | | 100 |
| Urinalysis | | Positive Glucose and/or Ketones (age <30 days) | |

* called the first time the specified test parameter is critical or if the most recent previous value was not critical.

**Microbiology**

MLabs will notify the client by telephone of positive results for any of the following tests, immediately upon verification of accuracy. Notification will occur each day unless otherwise specified. Note that as a courtesy the client may be notified of the results of other Microbiology tests not listed below at the technologist's discretion or physician request.

- AFB Smear (positive Respiratory smear)
- Blood Culture (positive stain and/or culture) (every 5 days)
- Body Fluid Culture – Synovial Fluid, Pericardial Fluid (positive stain and/or culture) (every 5 days)
- Cerebrospinal Fluid Culture (positive stain and/or culture) (every 5 days)
- Clostridium perfringes (positive Extremity culture)
- Clostridium septicum (positive culture)
- Cryptococcus Antigen Screen
- Fungus Smear (non septate hyphae in Nasal smear)
- Fusobacterium necrophorum (positive Head or Neck culture)
- Gram Stain – Sterile Fluids or Tissues
- Herpes simplex Encephalitis Detection by PCR
- Malaria Smear
- Microfilaria Smear
- Mycobacterium tuberculosis DNA Amplification, Respiratory
- Staphylococcus aureus (Vancomycin intermediate or resistant)
- Tissue Culture – Internal Tissue/Abscess, Bone Marrow, Bone (positive stain and/or culture) (every 5 days)
- Quantitative Wound Culture where colony count is greater than 10E3 per gram of Beta Hemolytic Streptococcus

**Anatomic Pathology**

MLabs will notify the client or caregiver by telephone or e-mail of any anatomic pathology result with potential to negatively impact patient care if not communicated in an urgent or timely fashion.

- any significant or unexpected diagnosis of malignancy (or vice versa) for which no equally timely and effective communication method (e.g. daily patient-based interaction with clinical colleagues) exists
- any significant disagreement with outside interpretation of TS cases for which no equally timely and effective communication method (e.g. daily patient-based interaction with clinical colleagues) exists
- any significant difference in final versus frozen section diagnosis
- any amended report reflecting a significant change in diagnosis
- bacteria or fungi in CSF
- pneumocystis, fungi, or viral cytopathic changes in BAL, wash, or brush
- discovery of clinically significant infections
- unexpected absence of chorionic villi in uterine curettings
- any findings likely to reflect either unrecognized perforation of an organ (e.g. fat in endometrial curettage or endoscopic polypectomy specimen), or unintended surgical consequences or misidentification of a specimen (e.g. ureter in specimen submitted as fallopian tube)
- suspicion of wrong-site surgery
- biopsies from transplant patients showing either rejection or graft-versus-host disease
- crescents in kidney biopsies
- evidence of an acute necrotizing vasculitic syndrome
- malignancy (suspected or not) in critical places (SVC syndrome, risk of spinal cord injury) in any cytology specimen
- significant disagreement between immediate interpretation and final interpretation in fine needle aspirate specimen that would alter immediate patient care