

Critical Values

Critical values are those results that indicate a high risk of morbidity or mortality in the absence of rapid intervention to treat the abnormal value or its underlying cause.

It is the policy of the laboratory to notify the ordering location of any laboratory results which are so far from the reference range that they indicate a potentially dangerous condition requiring immediate attention by the clinician. The ordering locations are notified even to those areas with computer printers or terminals. **Critical Laboratory results are always reported by telephone.** When a test is ordered that is a part of a panel without ordering the full panel, some testing instruments perform the entire panel (e.g., blood gases, or complete blood count), but unordered tests are not reported in the medical record or charged. However, if the results of an unordered test exceed critical limits, the critical result will be called to the ordering location. At that time, the ordering location will have the opportunity to order the test, so that the critical result may be documented in the medical record.

ANALYTE	CRITICAL VALUES
Absolute Neutrophil (non-oncology)	<0.5 THOU/mcL
Anti-X _a for Heparin Infusion	>0.90 IU/mL
Bilirubin, newborn (under 30 days old)	>12.0 mg/dL
Blood Gases, Adult <ul style="list-style-type: none"> • pH • pCO₂ • pO₂ 	<ul style="list-style-type: none"> • <7.20 or >7.58 • <9 or >65 mmHg • <40 mmHg
Blood Gases, Newborn (under 30 days old) <ul style="list-style-type: none"> • pH • pCO₂ • pO₂ 	<ul style="list-style-type: none"> • <7.25 or >7.50 • <30 or >50 mmHg • <50 or >90 mmHg
Calcium, ionized	<0.78 or >1.58 mmol/L
Calcium, total	<6.0 or >13.0 mg/dL
Carbon Dioxide (Total)	<10 or >40 meq/L
Carbon Monoxide	>20%
Fibrinogen	<100 mg/dL
Glucose <ul style="list-style-type: none"> • Newborn (under 30 days old) • Adult 	<ul style="list-style-type: none"> • <40 or >200 mg/dL • <50 or >500 mg/dL
Glucose, CSF	<20 mg/dL

Glucose, POCT	<ul style="list-style-type: none"> • Newborn (under 30 days old) • Adult 	<ul style="list-style-type: none"> • <50 or >200 mg/dL • <50 or >500 mg/dL
Hematocrit		<20%
Hemoglobin by oximetry	<ul style="list-style-type: none"> • Newborn (under 30 days old) • Adult 	<ul style="list-style-type: none"> • <8.1 g/dL or >21.1 g/dL • <6.0 g/dL
Heparin Induced Platelet Antibodies		Positive
Lead		≥70 mcg/dL
Magnesium		<1.2 or >4.7 mg/dL
Methemoglobin		>30.0 %
Osmolality		<250 or >350 mOsm/kg
Partial thromboplastin time		>120 sec
Phosphate		<1.0 mg/dL
Platelet Count	<ul style="list-style-type: none"> • Pediatric Range • Infants (NICU only) • Adults (non-Oncology) 	<ul style="list-style-type: none"> • <60 THOU/mcL • <60 THOU/mcL • <20 THOU/mcL
Potassium		<2.5 or >6.0 meq/L
Prothrombin Time		INR >5
Sodium		<120 or >160 meq/L
Sodium, CSF		<120 or >160 meq/L
T4	<ul style="list-style-type: none"> • Newborns (under 30 days old) • Adult 	<ul style="list-style-type: none"> • <3.5 or >18.0 mcg/dL • >18.0 mcg/dL
Troponin I		≥0.40 ng/mL (first critical value per 48 hour period for each patient)

Critical Values for Microbiology

Critical Values in Microbiology are results that indicate a potentially dangerous condition requiring immediate attention by the clinician. **Critical Laboratory results are always reported by telephone.** In accordance with The Joint Commission (TJC) requirements, it is required that we request and receive a read-back of results to ensure that the results were properly noted by the recipient. They include the following:

- Positive blood culture
- Positive direct exam or culture on spinal fluid (CSF)
- Positive Cryptococcal antigen (serum or CSF)
- Positive *Pneumocystis* stain
- Positive direct exam on any specimen from the Operating Room
- Positive AFB stain or culture from any specimen
- Eye culture positive with:
 - *Acanthamoeba* species
 - *Bacillus* species
 - *Neisseria gonorrhoeae*
 - *Pseudomonas aeruginosa*
 - *Staphylococcus aureus*
- Positive Herpes simplex virus PCR on cerebral spinal fluid (CSF)

Toxic Drug Levels

Toxic Drug Levels are those results that are so far from the therapeutic range that they indicate a potentially dangerous condition requiring immediate attention by the clinician. **CRITICAL LABORATORY RESULTS ARE ALWAYS REPORTED BY TELEPHONE.** In accordance with The Joint Commission (TJC) requirements, it is required that we request and receive a read-back of results to ensure that the results were properly noted by the recipient.

DRUG	TOXIC LEVEL
Acetaminophen	>50 mcg/dL
Alcohol (Methyl)	>24 mg/dL
Amikacin (Trough)	>30.0 mcg/mL
Amitriptyline+Nortriptyline*	≥1000 ng/mL
Caffeine	≥50.0 mcg/mL
Carbamazepine	>14.0 mcg/mL
Cyclosporine by LC-MS/MS (Trough)	>600 ng/mL
Desipramine*	≥500 ng/mL
Digoxin	>3.0 ng/mL
Doxepin+Nordoxepin*	≥500 ng/mL
Ethylene Glycol	≥10 mg/dL
Gentamicin (Trough)	>10.0 mcg/mL
Imipramine+Desipramine*	≥1000 ng/mL
Isopropanol and Acetone	>200 mg/dL
Lidocaine	>7.0 mcg/mL
Lithium	>2.0 mmol/L
Methotrexate	>100 mcmol/L
Nortriptyline*	≥500 ng/mL
Phenobarbital	>60.0 mcg/mL
Phenytoin (Dilantin)	>30.0 mcg/mL
Phenytoin, Free	>4.0 mcg/mL
Salicylate	>50 mg/dL
Theophylline	>25.0 mcg/mL
Thiocyanate	>20 mg/dL
Tobramycin (Trough)	>10.0 mcg/mL
Tricyclic Antidepressants	>500 ng/mL
Trimipramine*	>400 ng/mL
Vancomycin (Trough)	>40.0 mcg/mL
Valproic Acid (VPA)	>200 mcg/mL

*Testing performed by Mayo Medical Laboratory

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