Mayo Clinic Laboratories Critical Values / Critical Results List

PURPOSE
The purpose of this list is to identify the laboratory tests and their respective critical high and critical low values/results.

DEFINITION
A Critical Value / Critical Result is defined as
A value/result that represents a pathophysiological state at such variance with normal (expected values) as to be life-threatening unless something is done promptly and for which some corrective action could be taken.

NOTE: The critical values/results do not necessarily correspond directly with normal reference ranges, toxic ranges, or therapeutic ranges.

NOTE: In addition to the critical values identified on this list, critical alerts from testing referred to outside laboratories (non-Mayo) will be communicated to clients in accordance with notification standards once those performing laboratories notify Mayo.

HEMATOLOGY

Test Report Name	Age	Critical Low	Critical High	Units
Activated Partial Thromboplastin Time, Plasma		-	≥ 150	sec
Fibrinogen		≤ 60	-	mg/dL
Hemoglobin	0-7 weeks	≤ 6.0	≥ 24.0	g/dL
Hemoglobin	> 7 weeks	≤ 6.0	≥ 20.0	g/dL
INR (International Normalizing Ratio)		-	≥ 5.0	
Leukocytes		-	≥ 100.0	x10(9)/L
Absolute Neutrophil Count		≤ 0.5	-	x10(9)/L
Neutrophils		≤ 0.5	-	x10(9)/L
Platelets, Blood		≤ 40	≥ 1000	x10(9)/L
CSF White Blood Cell Count			≥ 100.0	Cells/mcL

CHEMISTRY

Test Report Name	Age	Critical Low	Critical High	Units
Ammonia – (Florida units are µmol/L, MCHS&RST units are mcmol/L)	≥ 1 yr	-	≥ 200	mcmol/L
*Ammonia – Arizona (Deviation in units)	≥ 1 yr		≥ 500	mcg/dL
Ammonia – (Florida units are µmol/L, MCHS&RST units are mcmol/L)	< 1 yr	-	≥ 100	mcmol/L
*Ammonia – Arizona (Deviation in units)	< 1 yr		≥ 150	mcg/dL
Bilirubin Total, Serum	< 1 yr	-	≥ 15.0	mg/dL
Calcium, Total		≤ 6.5	≥ 13.0	mg/dL
Calcium, Ionized, Blood	< 1 yr	≤ 2.0	≥ 6.0	mg/dL
Calcium, Ionized, Blood	≥ 1 yr	≤ 3.0	≥ 6.5	mg/dL
*Calcium, Ionized, Blood - Florida (Deviation due to methodology difference)	< 1yr	≤ 3.0	≥ 5.5	mg/dL
*Calcium, Ionized, Blood - Florida (Deviation due to methodology difference)	≥ 1 yr	≤ 3.0	≥ 6.0	mg/dL
Carbon Monoxide (Carboxyhemoglobin Level)		-	≥ 20	%
Creatinine, Blood/Plasma/Serum	1 day-4 weeks	-	≥ 1.5	mg/dL
Creatinine, Blood/Plasma/Serum	5 weeks-23 mos	-	≥ 2.0	mg/dL
Creatinine, Blood/Plasma/Serum	2 yrs-11 yrs	-	≥ 2.5	mg/dL
Creatinine, Blood/Plasma/Serum	12 yrs-15 yrs	-	≥ 3.0	mg/dL
Creatinine, Blood/Plasma/Serum	≥ 16 yrs	-	≥ 10.0	mg/dL
Creatine Kinase, Total		-	≥ 10,000	U/L
FT4 (Free Thyroxine)	< 50 yrs	-	≥ 7.8	ng/dL
FT4 (Free Thyroxine)	≥ 50 yrs	-	≥ 6.0	ng/dL
FT4 (Free Thyroxine) – Florida	All ages	-	≥ 7.8	ng/dL
Glucose, Plasma/Serum	< 4 weeks	≤ 40	≥ 400	mg/dL
Glucose, Plasma/Serum	≥ 4 weeks	≤ 50	≥ 400	mg/dL
Magnesium, Serum		≤ 1.0	≥ 9.0	mg/dL
Osmolality		≤ 190	≥ 390	mOsm/Kg
*pH (MCHS and AZ only)		≤ 7.200	≥ 7.600	pH
*pC02, arterial (MCHS and AZ only)		≤ 20.0	≥ 70.0	mmHg
*pO2 (MCHS)		≤ 40.0	-	mmHg
*pO2 (AZ)		≤ 45.0	-	mmHg
Phosphorus		≤ 1.0	-	mg/dL
Potassium		≤ 2.5	≥ 6.0	mmol/L
Sodium		≤ 120	≥ 160	mmol/L

TOXICOLOGY/TDM

Test Report Name	Age	Critical Low	Critical High	Units
Acetaminophen, S		-	> 150 4 hours after dose	mcg/mL
Acetone (Volatile Screen), applies to all specimen types		-	Any value detected	mg/dL
Amitriptyline and Nortriptyline, S		-	> 500	ng/mL
Butalbital, S		-	≥ 10	mcg/mL
Caffeine, S		-	≥ 30	mcg/mL
Carbamazepine, Total, S		-	≥ 15.0	mcg/mL
Carbamazepine, Free, S		-	≥ 4.0	mcg/mL
Clomipramine + Norclomipramine, S			> 450	ng/mL
Cyanide, B		-	≥ 2.0	mcg/mL
Desipramine, S		-	>400	ng/mL
Digoxin, S		-	≥ 4.0	ng/mL
Disopyramide, S		-	≥ 7.0	mcg/mL
Doxepin and Nordoxepin, S			> 500	ng/mL
Ethanol, Blood		-	≥ 400	mg/dL
Ethanol, Serum		-	≥ 400	mg/dL
Ethosuximide, S		-	> 150	mcg/mL
Ethylene Glycol, S		-	≥ 20	mg/dL
Imipramine and Desipramine, S		-	> 400	ng/mL
Isopropanol (Volatile Screen), applies to all specimen types			Any value detected	mg/dL
Lidocaine, S		-	> 6.0	mcg/mL
Lead, Blood	0 – 15 yrs	-	≥ 20	mcg/dL
Lead, Blood	≥ 16 yrs	-	≥ 70	mcg/dL
Lithium, S		-	> 1.6	mmol/L
Methanol (Volatile Screen), applies to all specimen types		-	Any value detected	mg/dL
Nortriptyline, S		-	> 500	ng/mL
Phenobarbital, S		-	≥ 60.0	mcg/mL
Phenytoin, Total, S		-	≥ 30.0	mcg/mL
Phenytoin, Free, S		-	≥ 2.5	mcg/mL
Primidone and Phenobarbital, S Primidone Phenobarbital		-	 ≥ 15.0 ≥ 60.0	 mcg/mL mcg/mL
Procainamide, S Procainamide N-Acetylprocainamide		-	 > 12 ≥ 40	 mcg/mL mcg/mL
Quinidine, S		-	≥ 6.0	mcg/mL
Salicylates, S		-	≥ 50.0	mg/dL
Theophylline, S		-	> 20	mcg/mL
Trimipramine, S			> 500	ng/mL
Valproic Acid, Free and Total, S Free Valproic Acid Total Valproic Acid		-	 > 30 ≥ 151	 mcg/mL mcg/mL
Valproic Acid, Total, S		-	≥ 151	mcg/mL

MICROBIOLOGY

Result	Specimen source and patient details
Detection (e.g., stain, culture, nucleic acid, antigen or metabolomic detection) of a clinically significant bacterium, fungus, parasite, or virus (except HIV, hepatitis A through E virus, BK virus, cytomegalovirus, Epstein-Barr virus)	Blood/plasma/serum, cerebrospinal fluid, brain tissue, amniotic fluid, ocular fluid/corneal scrapings
Identification/detection of a select agent (or other highly pathogenic organism) including, but not limited to *Bacillus anthracis*, *Brucella* species, *Burkholderia mallei*, *Burkholderia pseudomallei*, *Clostridium botulinum*, *Corynebacterium diphtheriae, Coxiella burnetii*, *Francisella tularensis*, monkeypox virus, variola virus, *Vibrio cholerae*, or *Yersinia pestis*. In the event of an outbreak of a novel contagious microorganism, detection of such an organism may fall into this category.	Any specimen tested
Detection of clinically significant fungi including, but not limited to members of the Mucorales (Zygomycetes) order, dimorphic fungal pathogens (e.g., *Histoplasma capsulatum*, *Blastomyces dermatitidis*, *Coccidioides* species), *Cryptococcus neoformans, Cryptococcus gattii*, or *Pneumocystis jirovecii*	Any specimen tested
Detection of *Strongyloides stercoralis* larvae	Non-intestinal specimen
Detection of herpes simplex virus or *Bordetella pertussis*	Any specimen tested from a neonate (<1 month)