CRITICAL VALUE POLICY

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN
LABORATORIES

Michigan Medicine Laboratories (MLabs) is committed to the health and safety of our mutual patients. Critical Values are defined as test results that fall significantly outside of the normal range and may indicate a life-threatening situation. It is the policy of Michigan Medicine Laboratories, in accordance with regulatory requirements, to call Critical Values to a licensed healthcare professional or authorized referring laboratory representative immediately upon the verification of results. By referring testing to MLabs the ordering clinician or facility agrees to be contacted with Critical Value notifications when indicated.

MLabs has established critical values for the following tests; this Critical Value policy is approved by the Michigan Medicine 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 (0 - 3 mos)	mmol/L	90	120
Glucose	mg/dL	50	450
Glucose (0 - 1 day)	mg/dL	40	200
Glucose (2 days - 1 yr)	mg/dL	50	200
Glucose, CSF	mg/dL	30	300
Lead, Blood	mcg/dL	-	70
Magnesium (obstetrics)	mg/dL	-	8
Potassium	mmol/L	2.5	6
Potassium (0 - 3 mos)	mmol/L	2.5	6.5
Sodium	mmol/L	120	160
Blood Gases			
Carboxyhemoglobin (COHb)	%	-	10
Base excess (cord blood)	mmol/L	-16	-
HCO3	mmol/L	10	40
Lactic Acid (ICU)	mmol/L	-	5.0
Lactic Acid (ICU 0 - 12 yrs)	mmol/L	-	2.2

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Test Name	Units	Lower Limit	Upper Limit
Methemoglobin	%	-	10
pCO2 (arterial & capillary)	mmHg	20	65
pH (arterial, venous, & capillary)		7.20	7.55
pH (cord blood arterial & venous)		7.0	-
pO2 (arterial)	mmHg	50	-
pO2 (capillary)	mmHg	20	60
Drug Levels			
Acetaminophen	mcg/mL	-	40
Amikacin (peak or random)	mcg/mL	-	30
Amikacin (trough)	mcg/mL	-	10.1
Carbamazepine	mcg/mL	-	15
Carbamazepine, Free	mcg/mL	-	3.5
Digoxin	ng/mL	-	2.0
Ethanol	mg/dL	-	450
Ethosuximide	mcg/mL	-	150
Everolimus	ng/mL	-	30
Gentamicin (peak or random)	mcg/mL	-	10.5
Gentamicin (trough)	mcg/mL	-	2.6
Lidocaine	mcg/mL	-	7
Lithium	mEq/L	-	1.5
Pentobarbital	mcg/mL	-	60
Phenobarbital	mcg/mL	-	60
Phenytoin	mcg/mL	-	30
Salicylate	mg/dL	-	30
Sirolimus	ng/mL	-	30
Tacrolimus	ng/mL	-	30
Theophylline	mcg/mL	-	25
Tobramycin (peak or random)	mcg/mL	-	10.5

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Test Name	Units	Lower Limit	Upper Limit
Tobramycin (trough)	mcg/mL	-	2.6
Valproic Acid	mcg/mL	-	150
Valproic Acid, Free	mcg/mL	-	30
Vancomycin (peak or random)	mcg/mL	-	60
Vancomycin (trough)	mcg/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
Zonisamide	mcg/mL	-	80
Coagulation			
Anti-Xa, LMWH	IU/mL	-	2.0
Anti-Xa, UFH	IU/mL	-	1.0
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 >or= 5% Blasts or suspicious cells	
Differential Count (inpatient)*		>or= 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	6	-

Test Name	Units	Lower Limit	Upper Limit
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)	
Blood Smear for Parasites		Malaria, microfilaria, trypanosomes, or babesia parasites identified or positive for malaria antigens.	
Body Fluid Analysis		Sterile body fluid positive for microorganisms.	

* 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 or Culture
- Blood or Bone Marrow Culture (positive stain and/or culture) (every 5 days)
- Body Fluid Culture (includes amniotic, pelvic, pericardial, peritoneal, pleural, synovial, and ocular fluid) (positive stain, culture, and/or PCR) (every 5 days)
- Cerebrospinal Fluid Culture or PCR (positive stain, culture, and/or PCR) (every 5 days)
- Clostridium perfringes, novyi, or sordellii (any source) (positive culture)
- Clostridium septicum (any source) (positive culture)
- Cryptococcus Antigen Screen
- Fungus Smear, sterile sites, eye, non septate hyphae in nasal smear
- Gram Stain Smear, sterile fluids or tissues
- Legionella pneumophila Urine Antigen
- Mycobacterium tuberculosis DNA by PCR (every 2 months)
- Staphylococcus aureus (Vancomycin intermediate or resistant)
- Tissue Culture, Bone (positive stain and/or culture) (every 5 days)
- Tissue Culture, Internal Organ, excludes GI and autopsy specimens (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

Michigan Medicine Pathology Department personnel will notify the client, care provider, or member of the care team by telephone or e-mail of any anatomic pathology or cytopathology result with potential to negatively impact patient care if not communicated in an urgent or timely fashion or any significant or unexpected findings with the potential to impact patient management.

- 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 or unexpected diagnosis of gestational trophoblastic disease (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 transfer and consult cases for which no equally timely and effective communication method (e.g. daily patient-based interaction with clinical colleagues, multidisciplinary tumor boards) exists.

- All significant differences in final versus frozen section diagnosis that potentially impacts patient management or outcome.
- All revised or amended reports reflecting a significant change in diagnosis with potential to impact treatment or outcome.
- Discovery of clinically significant infections.
- Unexpected absence of chorionic villi in uterine curettings.
- Any findings likely to reflect either 1) unrecognized perforation of an organ (e.g., fat in endometrial curettage or endoscopic polypectomy specimen) or 2) 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-vs-host disease.
- Crescents in kidney biopsies.
- Evidence of an acute necrotizing vasculitic syndrome.