CRITICAL VALUE POLICY

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
HCO3	mmol/L	10	40
Lactic Acid (ICU)	mmol/L	-	5.0
Lactic Acid (ICU 0 - 12 yrs)	mmol/L	-	2.2
Methemoglobin	%	-	10

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MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN
LABORATORIES

Test Name	Units	Lower Limit	Upper Limit
pCO2 (arterial & capillary)	mmHg	20	65
pH (arterial, venous, & capillary)		7.20	7.55
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
Amitriptyline	ng/mL	-	500
Carbamazepine	mcg/mL	-	15
Carbamazepine, Free	mcg/mL	-	3.5
Clomipramine	ng/mL	-	500
Digoxin	ng/mL	-	2.0
Doxepin	ng/mL	-	500
Ethanol	mg/dL	-	450
Ethosuximide	mcg/mL	-	150
Gentamicin (peak or random)	mcg/mL	-	10.5
Gentamicin (trough)	mcg/mL	-	2.6
Imipramine	ng/mL	-	500
Lidocaine	mcg/mL	-	7
Lithium	mEq/L	-	1.5
N-Acetylprocainamide (NAPA)	mcg/mL	-	30
Nortriptyline	mcg/mL	-	500
Pentobarbital	mcg/mL	-	60
Phenobarbital	mcg/mL	-	60
Phenytoin	mcg/mL	-	30
Salicylate	mg/dL	-	30
Sirolimus	ng/mL	-	30

Test Name	Units	Lower Limit	Upper Limit
Tacrolimus	ng/mL	-	30
Theophylline	mcg/mL	-	25
Tobramycin (peak or random)	mcg/mL	-	10.5
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)

Test Name	Units	Lower Limit	Upper Limit
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

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.