

## Critical Values - Bellingham Laboratory

Reporting of "critical values" is practiced at PeaceHealth Laboratories, Bellingham, using the limits published below. Laboratory results meeting these criteria indicate potential life-threatening conditions and are promptly communicated to a physician to initiate appropriate therapy.

CLINICAL LAB TESTING	CRITICAL VALUE
Acetaminophen	≥150 mcg/mL
ALT on PIH panels	>50 U/L
APTT (PTT)	>120 sec
AST on PIH panels	>41 IU/L
Bilirubin, Neonatal	>18.0 mg/dL
Calcium	<6.0 or >12.0 mg/dL
Calcium, Ionized	<0.80 mmol/L
Carbamazepine	>20 mcg/mL
Clinitest, Urine (newborns)	Any Positive
Creatinine Kinase (CK)	>10,000 U/L
CSF Cell Count	>10 WBC/mm <sup>3</sup>
Digoxin	>2.5 ng/mL
Fibrinogen	<100 mg/dL
Gentamicin, Trough	>2.5 mcg/mL
Glucose	<50 or >400 mg/dL (>300 mg/dL for Peds patients)

Glucose, Urine (newborns)	Any Positive
Hematocrit (neonatal)	<24% or >65%
Hematocrit (pediatric, adult, renal failure)	<20%
Heparin	≥ 1.5 IU/mL
Heparin, Low Molecular Wt, Enoxaparin	≥ 1.5 IU/mL
INR, Prothrombin Time	>5.4 (renal patients >4.0)
Ketones, Urine (newborns)	Any Positive
Lactate	>3.9 mmol/L (except POC tests which are never called)
Lithium	>2.0 mcg/mL
Magnesium	≤1.0 or ≥8.0 mg/dL
Malaria Smear	Suspected Malaria or Suspected Filariasis
Methotrexate	>5.0 μmol/L
Neutrophil count, Absolute (Outpatients only)	<1000/mm <sup>3</sup>
Phenobarbital	>60 mcg/mL
Phenytoin	>40 mcg/mL
Phosphorus	<1.0 mg/dL
Platelet count	<50,000/mm <sup>3</sup> initial
Platelet count (known thrombocytopenic pts)	<20,000 /mm <sup>3</sup>
Platelet count on PIH panels	<100,000/mm <sup>3</sup>
Potassium (K)	<3.0 or >6.0 mEq/L
Salicylate	>30 mcg/mL

Sodium (Na)	<125 or >155 mEq/L (<130 for newborns)
Theophylline	>25 mcg/mL
Tobramycin, Trough	>2.5 mcg/mL
Troponin I	≥ 0.1 ng/mL (1st positive only) (except POC tests which are never called)
Valproic Acid	>200 mcg/mL
Vancomycin (Peak, Trough, Random)	>80 mcg/mL
WBC Count	<2000 or >30,000/mm <sup>3</sup> (1st critical only or recurring critical after a non-critical)
WBC Count (neonatal)	<5000 or >30,000/mm <sup>3</sup>

<b>MICROBIOLOGY - CRITICAL ISOLATES</b>
Acid-fast <i>bacilli</i> (positive smear or growth in culture)
<i>Bordetella pertussis</i>
<i>Brucella species</i>
<i>Corynebacterium diphtheriae</i>
<i>Cryptococcus neoformans</i>
Mold, pathogenic (identified by reference lab such as <i>Coccidioides</i> )
Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) from sterile body fluids and tissue/biopsy specimens (SBFT)
<i>Neisseria meningitidis</i> from blood, CSF and other sterile body fluids
Situations: Positive: blood, bone marrow, CSF, Pharmacy product; possible meningitis case

<b>MICROBIOLOGY - ISOLATES OF ELEVATED IMPORTANCE</b>
STAT direct exam requests from SBFT or surgical specimens (positive or negative results)
Positive catheter tip cultures
Positive Peritoneal (Ascities) fluid cultures with potential pathogen(s)
Positive direct tests for <i>Giardia</i> , Influenza, Rotavirus, RSV and <i>Streptococcus</i> group-A
Positive <i>C. difficile</i> toxin tests
Presumptive <i>Nocardia</i> or Rapid Growing AFB type organisms
<i>Chlamydia trachomatis</i>
Enteric pathogens ( <i>Aeromonas</i> , <i>Plesiomonas</i> , <i>E. coli</i> O157, <i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , <i>Yersinia</i> , <i>Vibrio</i> )
<i>Enterococci</i> - Vancomycin resistant strains
ESBL - Extended Spectrum Beta-Lactamase organisms
<i>Listeria monocytogenes</i>
<i>Neisseria gonorrhoeae</i>
Ova or parasites detected ( <i>Giardia</i> , <i>E. histolytica</i> , all ova, all worms)
Viruses

<b>BLOOD BANK - CRITICAL SITUATIONS</b>	<b>Call To</b>		
	<b>Physician</b>	<b>Nurse</b>	<b>Pathologist</b>
Warm autoantibody with the need to transfuse least-incompatible blood	<b>X</b>		<b>X</b>
Possible TRALI			<b>X</b>
Acute hemolytic transfusion reaction			<b>X</b>
Possible delayed transfusion reaction			<b>X</b>

No components available in Seattle (e.g., no CMV-negative pheresis units)	X		
No components available in Bellingham (e.g., irradiated)		X	
New antibody in recently transfused patient (rule out delayed hemolytic transfusion reaction)		X	X
Any delay in transfusion not listed		X	
Substitution of Rh-positive blood to a female of child-bearing age	X		X
Positive antibody screen and emergent need for blood		X	X
Positive DAT on cord blood		X	
Possibility of transfusion-transmitted diseases			X

## Critical Value Notification Process

It is the policy of PeaceHealth Laboratories to have the technologist performing and reporting the test to notify the appropriate person who can respond to the critical result. The person notified of “critical values,” in order of preference, is as follows:

### Hospital Patients

- **Blood Bank**
  1. Critical blood bank situations must be called to either the pathologist, patient’s physician or nurse. See table of critical situations for who must be called.
- **Clinical Laboratory**
  1. The RN on duty for that patient, the nurse team leader, or the house supervisor.
  2. The attending/ordering physician or physician on call.
  3. The pathologist on call.

- **Microbiology - Critical Isolates**

1. The ordering physician (or on-call physician covering for the ordering physician; if neither can be contacted, obtain from the nursing staff the name of the attending physician to contact). The report can be given to the physician's office personnel.
2. The nursing or ward personnel where the patient is located.
3. The medical microbiology director if no physician can be contacted, or the on-call pathologist if the medical microbiology director cannot be contacted.
4. Notify pharmacy and infection control personnel for all positive pharmacy products.
5. MRSA (Methicillin resistant *S. aureus*) isolates are called according to the following criteria:
  - SBFT: call the floor and the physician.
  - Non-SBFT: call the floor only.
  - Emergency: SBFT - call department.
6. VRE (Vancomycin resistant *enterococci*) is called in the following special circumstances in addition to when confirmed:
  - Presumptive VRE (Vitek results are vancomycin resistant or intermediate).
  - In-patient SBFT: call floor and give verbal "possible VRE" report.
  - Confirmed VRE (confirmed by 24 hour method) report according to the Critical Value criteria listed above.
7. Positive blood and CSF specimens in which an initial gram stain was first reported as "GPC" must have a follow-up call to the physician if the GPC turns out to be *S. aureus*.

- **Microbiology - Isolates of Elevated Importance**

1. Notify the appropriate nursing area for inpatients and emergency room.
2. Notify the pharmacy for any pharmacy related cultures.

### **Outpatients**

1. The ordering physician's nurse or designated office staff.
  - Note: Physician offices may designate an individual other than a nurse with the authority to accept critical results.
2. The attending/ordering physician or physician on call.
3. The pathologist on call.
4. MRSA SBFT: call the physician; late evening results can wait until next day to be called. Nursing homes: call for all new cases; late evening results can wait until next day to be called.