

TriHealth Laboratories**CRITICAL/VITAL LABORATORY RESULTS NOTIFICATION**

PURPOSE

This laboratory-specific policy supplements the **TriHealth Corporate Policy #02_37.00: Critical Results Reporting**. It distinguishes between laboratory critical and vital results/values and defines the process for notification of physicians or clinical personnel responsible for patient care. Although licensed practitioners other than medical doctors can order laboratory tests, this policy and related laboratory documents use the term “ordering physician” when referring to the person who requested the test.

PHILOSOPHY

Critical values represent a pathophysiological state at such variance with normal as to be life-threatening unless something is done promptly, and for which some corrective action can be taken. A critical value reflects a potentially life-threatening emergency.

Vital values differ from critical values only in that rapid corrective action is not crucial. A vital value reflects a disease state that merits rapid detection and evaluation.

POLICY/PROCEDURE

The Laboratory has established medical-staff approved critical and vital values for those tests listed in this policy. If the Laboratory is notified of a critical result for a test performed by a referral lab, the Laboratory will relay such information to the caregiver as indicated in this policy.

For inpatients and those in ancillary hospital departments including TriHealth Cancer Institutes (TCIs),

Both **critical** and **vital** results will be immediately called or sent via Voalte to the RN on the unit who has direct responsibility for that particular patient. If there is no response within 15 minutes on Voalte, the call is escalated to the Charge Nurse on the unit or to another RN. The RN needs to acknowledge and respond on Voalte that the result was received.

If calling the result and the RN is unavailable, the caller will request to speak to the Charge Nurse on the unit or another RN.

The provider needs to be contacted within 30 minutes of resulting the critical/vital.

For outpatients or outreach patients,

Critical results will be immediately called to the ordering physician's office if open, or directly to the ordering physician after hours. These results can be given to other clinical personnel responsible for patient care including home health agency nursing staff. Critical results on testing referred to TriHealth from other laboratories is called to the referring laboratory.

The provider needs to be contacted within 30 minutes of resulting the critical.

Vital results will be called to the ordering physician's office if open; or if after hours, held until the ordering physician's office next opens. These results can be given to other clinical personnel responsible for patient care including home health agency nursing staff. Vital results on testing referred to TriHealth from other laboratories is called to the referring laboratory.

Fail-Safe for Contacting the Physician

1. If unable to reach the provider with the Critical or Vital result during Customer Support business hours, result as ‘Unsuccessful’ in Callback in Sunquest. In addition, call Customer Support with the patient information so they can follow up in Callback.
 - Customer Support Phone #: 513-865-4669
 - Customer Support hours of operation:

Monday- Friday: 0730 – 0200 (closed from 2 am to 730 am)
Saturday: 0800 – 1630
Sunday: 0800 – 1300
Holidays: 0800 - 1300

2. If the Critical is not in Customer Support business hours, it is the responsibility of the site to contact the ordering provider.
3. Vital results sent to Customer Support after physician office business hours will be called to the office the next business day.

For discharged inpatients

Critical and **Vital** results will be immediately messaged in Voalte to:

- ‘***Cross-cover Hospitalist***’ for Bethesda North and Good Samaritan Hospitals
- ‘***Hospitalist on call***’ for McCullough Hyde and Bethesda Butler Hospitals.

The provider needs to be contacted within 30 minutes of resulting the critical or vital.

For discharged inpatients with an outpatient order from a Hospitalist

Critical and **Vital** results will be immediately messaged in Voalte to:

- ‘***Cross-cover Hospitalist***’ for Bethesda North and Good Samaritan Hospitals
- ‘***Hospitalist on call***’ for McCullough Hyde and Bethesda Butler Hospitals.

The provider needs to be contacted within 30 minutes of resulting the critical or vital.

For discharged Emergency Department patients

Critical and **Vital** results will be immediately called via phone or Voalte to the Emergency Department.

The ED charge nurse needs to be contacted within 30 minutes of resulting the critical or vital.

For Deceased Patients

Critical and **Vital** results do not need to be called for deceased patients. Document in the LIS that the patient is deceased and notification is not required.

Additional Considerations

1. If contacting via phone call, a message similar to the following may be left on voicemail: “This is Jane Smith from TriHealth Laboratories. I have a critical result on John Doe. Please call the Lab at xxx-xxxx as soon as possible for the critical result.” The critical result is not to be left on voicemail.
2. If the provider or RN does not respond promptly, verify the contact information and attempt another contact if any information was incorrect. (Can you check the original requisition? Are you calling the correct ordering physician or MD on call? Is it the correct phone or contact number?)

Laboratory team members should also refer to the detailed information in the laboratory procedure “***Critical Vital Value Documentation Using Callback***”, “***Communication of Microbiology-Related Critical, Vital and Infection Prevention Results***”, and “***Reporting STAT/Critical Referral Results***”.

BLOOD BANK RESULTS

C = Critical Value

V = Vital Value

Antibody Titers	V	Obstetric patients' titers of antibodies capable of causing Hemolytic Disease of the Newborn (HDN): first time only unless a significant increase (of at least 3 dilutions) in titer is seen on consecutive testing.
Cord Blood	V	Positive Coombs
Transfusion Reactions	C	- Acute Hemolytic (due to ABO or other allotypic RBC antigen incompatibility) - Anaphylactic - Transfusion-Related Acute Lung Injury (TRALI)

MICROBIOLOGY RESULTS

ALL = Critical Values

Performed at TriHealth: Positive Gram Stains (or Positive Cultures if initial gram stain was negative or not called): - Blood - Fluids: CSF (Cerebral Spinal Fluid), Synovial, Amniotic - Tissue
Refer also to laboratory policy "Communication of Microbiology-Related Critical, Vital and Infection Prevention Results" for additional information.

CHEMISTRY RESULTS

C = Critical Value

V = Vital Value

Acetaminophen	C	>40.0 mcg/mL
Amikacin	V	Random: >30.00 mcg/mL Trough: >8.00 mcg/mL Peak: >30.00 mcg/mL
Ammonia	C	Age < 1 year: >35 mmol/L
Amylase* (<i>see NOTE 1 below</i>)	C	>300 U/L
Beta HCG	V	>250,000.0 mIU/mL
Bicarbonate (HCO ₃)	C	<12 mmol/L
Bilirubin, Total (Neonate)	C	Less than 1 month old: >17.0 mg/dL
BUN* (<i>see NOTE 1 below</i>)	V	>100 mg/dL
Calcium	C	<6.0 mg/dL or >12.0 mg/dL
Calcium, Ionized	C	Greater than or equal to 1 year old: <3.0 mg/dL or >6.4 mg/dL Less than 1 year old: <3.0 mg/dL or >6.0 mg/dL
Carbamazepine	V	>15.0 mcg/mL
Carbon Dioxide (CO ₂)	C	<12 mmol/L

Carbon Monoxide	C	>20 %
CK, Total* (see NOTE 1 below)	V	>5000 IU/L
Creatinine* (see NOTE 1 below)	V	Greater than or equal to 1 year old: >3.0 mg/dL (only ED patients, OBGYN patients and all outpatients) Less than 1 year old: >2.0 mg/dL
Digoxin	V	>2.5 ng/mL
Dilantin (Phenytoin)	V	>30.0 mcg/mL
Fetal Fibronectin	C	Positive
Gentamicin	V	Random: >12.0 mcg/mL Trough: >2.0 mcg/mL and Age < 1 year: > 1.0 mcg/mL Peak: >12.0 mcg/mL
Glucose	C	Greater than or equal to 1 year old: <54 mg/dL or >400 mg/dL Less than 1 year old: <40 mg/dL or >150 mg/dL

CHEMISTRY RESULTS (cont'd)

C = Critical Value

V = Vital Value

Lactate	C	>4.0 mmol/L
Lithium	C	>1.5 mmol/L
Magnesium	C	Greater than or equal to 1 year old: <1.2 or >7.2 mg/dL Less than 1 year old: <1.2 or >4.8 mg/dL
O ₂ Saturation (arterial)	C	<80 %
pCO ₂ (arterial and venous)	C	<20 mm Hg or >70 mm Hg
pH (arterial and venous)	C	<7.20 or >7.60 Arterial cord blood: <7.00
Phenobarbital	V	>40.0 mcg/mL
Phosphorus	C	Greater than or equal to 1 year old: <1.0 or >8.0 mg/dL Less than 1 year old: <3.0 mg/dL
pO ₂ (arterial)	C	<40 mm Hg
Potassium	C	Greater than or equal to 1 year old: <3.0 mEq/L or >6.0 mEq/L Less than 1 year old: <2.5 mEq/L or >7.0 mEq/L

Salicylate	C	>30 mg/dL
Sodium	C	<125 mEq/L or >160 mEq/L
Theophylline	C	>25.0 mcg/mL
Tobramycin	V	Random: >12.0 mcg/mL Trough: >2.0 mcg/mL Peak: >12.0 mcg/mL
Triglycerides	C	Less than 1 year old: >300 mg/dL
Troponin, High-Sensitivity* (see NOTE 1 below)	C	>87 ng/L
Uric Acid	C	>22.0 mg/dL
Valproic Acid	V	>140.0 mcg/mL
Vancomycin	V	Random: >50.0 mcg/mL Trough: >20.0 mcg/mL

***CHEMISTRY NOTES:**

1. If a critical/vital result for **Amylase**, **BUN**, **Total CK** or **High-Sensitivity Troponin** is discovered more than once in a **24-hour** period, or if a vital result for **Creatinine** is discovered more than once in a **48-hour** period; no telephone call or Voalte will be made for the subsequent result, but the result will be noted as a previous critical/vital on the test report.

HEMATOLOGY RESULTS

C = Critical Value

V = Vital Value

Factor VIII	V	<20%
Factor IX	V	Greater than or equal to 30 days: <20% Less than 30 days: <15%
Fibrinogen* (see NOTE 1 below)	C	<100 mg/dL
Anti-factor Xa, UFH ECMO	C	>1.0 IU/mL
Anti-Factor Xa, UFH LVAD	C	>1.0 IU/mL
Hemoglobin	C	Greater than or equal to 1 day old: <7.0 or >23.0 Less than 1 day old: <13.0 or >23.0
Hematocrit* (see NOTE 1 below)	C	Greater than or equal to 1 day old: <18 or >69 Less than 1 day old: <36 or >69
Hemoglobin Plasma (HGBP)	C	>30 mg/dL
Heparin Induced Platelet Antibodies	C	Positive

Microorganism in peripheral blood or CSF	C	Any organism seen on a stained blood or CSF smear
Platelet Count* (see NOTE 1 below)	C	Greater than or equal to 1 year old: $<20 \times 10^3/\text{mcL}$ or $>1000 \times 10^3/\text{mcL}$ Less than 1 year old: $<75 \times 10^3/\text{mcL}$ or $>1000 \times 10^3/\text{mcL}$
INR (Protime)	C	Greater than or equal to 1 year old: >5.0 Less than 1 year old: >2.9
PTT (Partial Thromboplastin Time)	C	Greater than or equal to 1 year old: >144.9 seconds Less than 1 year old: >84.9 seconds
Urine Ketones	V	Less than 12 years old: $>\text{Trace}$
WBC (White Blood Cell) Count on Whole Blood* (see NOTES 1 & 2 below)	C	Greater than or equal to 1 year old: $<1.0 \times 10^3/\text{mcL}$ or $>50.0 \times 10^3/\text{mcL}$ Less than 1 year old: $<5.0 \times 10^3/\text{mcL}$ or $>35.0 \times 10^3/\text{mcL}$
WBC Differential: Absolute Neutrophil Count (ANC)* (see NOTE 3 below)	V C	Greater than or equal to 1 year old: $<1.00 \times 10^3/\text{mcL}$ Less than 1 year old: $<1.00 \times 10^3/\text{mcL}$

***HEMATOLOGY NOTES:**

1. If a critical result for **WBC, Hematocrit, Fibrinogen**, or non-infant Platelet Count is discovered more than once in a 48-hour period; no telephone call will be made for the subsequent result, but the result will be noted as a previous critical on the test report.
2. **WBC** $>50,000$ will not be called on known Chronic Lymphocytic Leukemia patients.
3. If a vital result for a non-infant Absolute Neutrophil Count is discovered more than once in a 72-hour period (or for GS14CD inpatients more than once in 7 days); no telephone call will be made for the subsequent result, but the result will be noted as a previous vital on the test report.

ASSOCIATED DOCUMENTS

TriHealth Corporate Policy #02_37.00: *Critical Results Reporting*

“Communication of Microbiology-Related Critical, Vital and Infection Prevention Results”

“Reporting STAT/Critical Referral Results”

“Critical Vital Value Documentation Using Callback”

REFERENCES

- 1) CAP, All Common Checklist.
- 2) Howanitz PJ, Steindel SJ, Heard NV. Laboratory Critical Values Policies and Procedures. Archives of Pathology & Laboratory Medicine: June 2002, Vol.126, No.6, pp. 663-669.
- 3) Kiechle FL, Hernandez JS. Q&A: If You Order It, You Own It. CAP Today: May 2010, Vol.24, No.5.

- 4) Lundberg GD. Critical (Panic) Value Notification: An Established Laboratory Practice Policy (Parameter). JAMA. 1990;263:709.
- 5) Lundberg GD. It is Time to Extend the Laboratory Critical (Panic) Value System to Include Vital Values. MedGenMed. 2007;9(1):20.