UPMC Hanover
300 Highland Avenue
Hanover, PA 17331

Critical Values for Laboratory Tests

Purpose:

Critical laboratory result limits define boundaries of life-threatening values of laboratory test results.

A critical value is a value at such variance with normal as to represent a pathophysiologic state which may be life threatening unless some action is taken in a very short time and for which appropriate action is possible.

This policy establishes the procedure for handling and notifying the appropriate licensed healthcare provider of laboratory critical values that may require prompt attention to avert significant patient morbidity or mortality.

Scope:

Applies to UPMC Pinnacle Hanover laboratory only.

Policy:

Critical values are established at the UPMC Pinnacle System level in consultation with the Laboratory Medical Director and clinicians.

The current laboratory critical value list follows this policy/procedure.

The laboratory information system (LIS) flags numeric critical values alerting the performing technologists and technicians of the critical value.

Critical value notification is communicated verbally and typically via the telephone. This notification is documented and maintained on record in the laboratory information system.

Faxing a critical value without an initial verbal l notification is not acceptable as a means of critical value notification**.** Under no circumstances are critical value results left on an answering machine or given to an answering service.

Notification documentation must include the date and time of the notification, person notified, laboratory personnel performing the notification, and test result(s). *Documentation for the person notified **must include** at minimum the first and last name of **the individual receiving the result.***

When the laboratory communicates the information to someone other than the ordering provider, the laboratory reminds staff that he/she is responsible for communicating the critical test result to the provider.

Tests Performed In-House:

Laboratory personnel notify appropriate healthcare providers of critical test results at the completion of the test (within 10 minutes)– for those tests performed in-house (at this facility). **The technical staff performing the test resulting in a critical value is responsible for ensuring follow-up action is performed and that the healthcare provider is notified *immediately* upon verification of the result.**

Reference Laboratory Test Results:

Laboratory personnel notifies the appropriate healthcare provider of Priority 1 test results (results considered 'critical' in nature) from the laboratory's primary reference laboratory – Quest Diagnostics – during the hours of 7-3 PM seven days a week. Notification received after 3 PM is documented for communication and 'hand-off' for the 7-3 PM shift on the following day to perform the notification. The Medical Technologist or Medical Laboratory Technician receiving the critical notification from Quest Diagnostics is responsible for this documentation to communicate to the 7-3 PM shift that notification is required.

Definitions:

For the purposes of this policy:

In-House:	Refers to any patient that has been assigned a location or bed in one of the nursing unit locations (Inpatient, Observation, ELA, SDS, GEU, TCU, Boarder, etc.).
ED:	Patient that is currently being treated or has been treated in the ED.
Outpatients:	Walk-In Outpatients, Nursing Home Patients, or specimens from patients collected at client facilities or provider offices– sometimes referred to as Nonpatients.

Establishing or Changing Existing Critical Value Limits:

Requests to add or change existing critical value tests or limits requires system level approval. Requests received locally at UPMC Hanover are forwarded to the System Laboratory Director at UPMC Pinnacle for review.

"Custom" Critical Value Requests:

UPMC Hanover cannot accommodate "Custom" critical value requests.

Procedure:

1. Tests which yield critical values are repeated for verification (whenever possible).

2. When previous results are available; compare current result with the previous and check for discrepancy between the two. If a discrepancy exists; investigate and evaluate further prior to reporting results.

3. The notification process must occur as soon as results are verified (within 10 minutes).

4. **Notify the provider or nursing personnel as follows**:

In-House Patient OR Nursing Home Patient	1. Call the result to the **charge nurse** (or RN in the absence of a charge nurse) of the appropriate nursing department. 2. Clearly state that it is a critical result and recommend provider notification. 3. Read the result to the nurse. 4. Go to Step 5 of this procedure for the next step.
ED Patient	1. **Call the result to the ED provider directly**. 2. If he/she is unable to take the call; give the result to the charge nurse. 3. Clearly state that it is a critical result. 4. Read the result to the provider. 5. Go to Step 5 of this procedure for the next step.
Outpatients	1. Call the result to the ordering provider or provider on call for the ordering provider. 2. Read the result to the person taking the call. 3. Clearly state to that it is a critical result. *Result is given to an individual with clinical background (nurse, medical assistant, etc.) clearly state that it is a **critical value and that the provider must be notified as soon as possible.*** 4. Go to step 5 of this procedure for the next step.

5. Ask the person that receiving the result to write record the result and **read it back to you**.

When the receiver of results reads it back; **verify that the result read back correlates** with those provided. Correct any discrepancy in the delivery as necessary.

6. Document the call in the LIS for the result indicating the following:
   - **Date and Time of the Call**
   - **Name of the person notified (First and Last Name)**
   - **Read back and verification process performed.**

7. Document any additional information (i.e. repeated for verification) with a comment code for the result in the LIS.

Procedural Notes:

1. During periods of downtime; record the critical value, follow-up and documentation of the notification on the downtime report. When the LIS is functional again; ensure the result is entered with the critical value documentation.

2. Consult with the hospital operator for assistance when encountering difficulty contacting an on-staff or local area provider.

3. If the critical value is for a non-staff (non-local) provider and that provider cannot be reached; notify the laboratory supervisor, administrative director, or pathologist for assistance.

4. Critical value follow-up action and documentation is monitored periodically and report as part of the laboratory's quality management program and covered during employee annual performance appraisals.

5. Reference laboratory critical values are called to the provider or nursing unit by laboratory staff the next day.

6. Any difficulty in locating someone to accept results should be documented in the hospital's occurrence management system and referred to an immediate supervisor.

References and
Supporting Documents:

College of American Pathologists, All Common Checklist COM.30000, 325 Waukegan Road, Northfield, IL 60093-2750.

UPMC Pinnacle Laboratory General Policy #8, Calling Laboratory Critical Values and Other Results, October 23, 2018.

Review and Update

Replaces procedure: ADM 5008.07 Critical Values for Laboratory Tests (11/14/17).

UPMC Hanover
300 Highland Avenue
Hanover, PA 17331

Critical Value List for Laboratory - Standard List for All UPMC Pinnacle Laboratories

Approved by Hanover MEC (March 2019) - Implemented 3/26/19

DEPARTMENT	TEST	LOW	HIGH
Chemistry	Acetaminophen		Greather than **150** mcg/mL
	Amylase		Greater than **330** Units/L
	Bilirubin, Newborn		Greater than **12** mg/dL
	Calcium	Less than **6** mg/dL	Greater than **13** mg/dL
	Carbamezapine		Greater than or equal to **16** mcg/mL
	CO_2 (Bicarbonate)	Less than **15** mmol/L	
	Digoxin		Greater than **3.0** ng/mL
	Gentamicin, (Trough)		Greater than **2** mcg/mL (trough)
	Glucose (adult)	Less than **40** mg/dL	Greater than **500** mg/dL
	Glucose (newborn)	Less than **30** mg/dL	Greater than **300** mg/dL
	Lactate		Greater than **4** mmol/L
	Lipase		Greater than **120** Units/L
	Lithium		Greater than **1.4** mmol/L
	Magnesium	Less than **1** mg/dL	Greater than **4** mg/dL
	Phenobarbital		Greater than **60** mcg/mL
	Phenytoin		Greater than **40** mcg/mL
	Phosphorus	Less than **1** mg/dL	Greater than **8** mg/dL
	Potassium	Less than 2.**5** mmol/L	Greater than **6.5** mmol/L
	Salicylate		Greater than **30** mg/dL
	Sodium	Less than **120** mmol/L	Greater than **160** mmol/L
	Theophylline, general		Greater than **25** mcg/mL
	Tobramycin (Trough) * Not performed at Hanover		Greater than **2** mcg/mL (trough)
	Valproic Acid		Greater than **160** mcg/mL
Urinalysis	Ketone	Any **positive** result (patients less than 2 years)	
Hematology/ Coagulation	Fibrinogen	Less than **65** mg/dL	
	Hematocrit, Adult (if Hgb is not available)	Less than **24%** on all patients	
	Hematocrit, Newborn	Less than **35%** (1st week) Less than **25%** (2nd Week)	Greater than **65%**
	Hemoglobin, Adult	Less than or equal to **7.0** g/dL on all In-House Patients	
		Less than **8.0** g/dL on all Outpatients	
	Hemoglobin, Newborn		Greater than or equal to **21.0** g/dL
	INR (International Normalized Ratio)		Greater than or equal to **5**
	Platelet Count	Less than or equal to 1**0,000**/mm^3	
	PTT (Partial Thromboplastin Time)		Greater than **100** seconds (In-House Patients)
			Greater than 50 seconds (Outpatients)
	White Blood Count (WBC)	Less than **1,500**/mm^3	
Microbiology	Gram Stains and Cultures	All **positive CSF gram stains and culture** results are critical	
	Blood cultures	All **positive blood cultures** are critical	