Policy VI-14 Clinical Laboratory Critical Value Immediate Notification Policy

SUBJECT	Immediate notification of critical values
SCOPE	All lab sections
VERSION	11.0 under versioning system instituted 2/04

Rationale: In order to assist the ordering physician in responding to certain potentially life-threatening outcomes, a group of laboratory test results that merit immediate notification has been identified. This procedure is not intended to cover all clinically serious test results or changes in test results. Furthermore, in a clinical laboratory that serves the needs of many acute care specialty services, it is not possible to differentiate which abnormal results are or are not unexpected in the context of the clinical history. Therefore, it is essential that the ordering physician take responsibility for following up on all test results in a timely fashion.

Which test results are considered "critical values"?: To accomplish the objectives given above, cutoff values for certain laboratory tests were determined based on the literature and experience. This list is of necessity somewhat subjective, but can be modified based on ongoing experience. Given the volume of testing performed in the clinical laboratories and lack of detailed clinical information, it is not possible to set different critical value limits based on clinical setting.

How will critical results be reported?: Critical values will be reported according to the following protocol:

1) The critical value is confirmed according to a test-specific protocol. For some tests (see list), the lab computer will be checked and if a similarly abnormal value was reported within the past two days, the repeat critical value will not be treated as an emergency, and will be reported according to our standard protocol (i.e., will not be immediately called).
Results that are invalidated by an inadequate specimen (i.e. low glucose in a red-top tube over 4 hours; potassium in a hemolyzed sample) will not be reported as a critical value. These tests will be recorded with an appropriate comment in the laboratory computer.

2) The test result will be immediately reported. The laboratory has established a 5 minute turn around time from verified critical result to notification. This will be audited on a monthly basis and submitted to Quality Assurance for evaluation. Deviations will be followed-up as needed.

3) The responsible provider, inpatient location or private office, is to be called with the results. If the provider is not available, a nurse or other designee can be given the result but should be instructed on the necessity to give this result to the provider in a timely manner.

a. Give result(s) and request a read-back of "what was written down" and document in LIS.
b. If the results are not given to the provider directly (nurse or designee), confirm that the recipient acknowledges the severity of the result and that it should be communicated to the provider within 15

minutes.

4) When critical results need to be called after hours or when the office is not open, an on-call provider or answering service must be available on a 24-hour basis to take responsibility for receiving the test result.

If an answering service is called, the urgency of the result and necessity to give this result to the responsible physician is explained, but the result is not reported and an appropriate call- back number is left. The time and person receiving the call is recorded as an internal comment in the lab information system. The responsibility for contacting the responsible physician rests with the office / answering service but follow-up must be ensured by calling laboratory.

What are the necessary Components of Calling a Critical Value?

1. Clear introduction including name, department, and laboratory (for offsite locations).
2. Reason for phone call: Critical Value.
3. Patient involved – Two identifiers (Name and DOB or MRN).
4. Ask for caregiver (doctor, nurse) of patient identified.
5. Give result(s) and request a read-back of "what was written down".
6. Document transaction in call box, to include:
    a. name of person who took the result
    b. date and time
    c. verification that the read-back was performed.

Clinical Laboratory Critical Value Immediate Notification Test List
Chemistry/Hematology Tests

Assay	Lower Limit	Upper Limit	Call if similar result within 2 days?
Blood Gas			
pH (mm Hg)	7.21	7.59	Yes
pCO2 (mm Hg) *arterial only*	21	69	Yes
pO2 (mm Hg) adult *arterial only*	46	--	Yes
pO2 (mm Hg) newborn < 5 days old *arterial only*	41	90	Yes
MetHb (%)	--	29	Yes
COHb (%)	--	19	Yes
General Chemistry			
Calcium (mg/dl)	6.6	12.9	Yes
Ionized calcium (mg/dl)	3.2	6.2	Yes
Chloride (mmol/l)	81	119	Yes
CO2 (mmol/l)	11	39	Yes

Glucose (mg/dl) newborn 0-1 days	26	199	Yes
Glucose (mg/dl) newborn day 2-7	41	199	Yes
Glucose (mg/dl) adult	41	499	Yes
Glucose, CSF (mg/dl)	38	--	Yes
Lactate (mmol/l)	--	3.4	Yes
Osmolality (mOsm/kg)	251	324	Yes
Mg (mEq/l)	0.9	3.9	Yes
Phosphate (mg/dl)	1.2	8.9	Yes
Potassium (mmol/l) newborn 0-2 days	2.9	7.9	Yes
Potassium (mmol/l) 3-120 days	2.9	6.9	Yes
Potassium (mmol/l) >120 days	2.9	6.1	Yes
Sodium (mmol/l)	121	159	Yes
Total Bilirubin (mg/dl) < 1 week	--	14.9	Yes
Hematology			
Band Count	--	15% for 1 day old; 10% for all other ages	No
Hematocrit (%)	20	--	No
INR	--	4.9	No
Malaria smear	--	Organisms +	No
Platelet count (thousand/microl)	20	--	No
Organisms seen in bld, CSF smear		any	No
WBC (thousand/microl)	--	149	No
Toxicology			
Acetaminophen (ug/ml)	--	49	Yes
Alcohols (mg/dl)			
--Ethanol	--	299	Yes
--Methanol	--	9	Yes
--Isopropanol	--	9	Yes
--Acetone	--	19	Yes
Carbamazepine (ug/ml)	--	14.9	Yes
Digoxin (ng/dl)	--	2.4	Yes
Lithium (mmol/l)	--	1.49	Yes

Phenobarbital (ug/ml)	--	49.9	Yes
Phenytoin-Dilantin (ug/ml)	--	39.9	Yes
Free Phenytoin (ug/ml)	--	3.4	Yes
Salicylate (mg/dl)	--	49.9	Yes
Theophylline (ug/ml)	--	24.9	Yes
Valproate (ug/ml)	--	149	Yes
Blood Bank			
Hemolytic transfusion reaction	Confirmation by lab analysis		Yes

Clinical Laboratory Critical Value Immediate Notification Test List
Microbiology Tests

Organism	Criteria	Call if similar result within 2 days?
Any bacteria or fungus from blood	Positive (+) smear	Yes
Any bacteria or fungus from sterile fluid or tissue (other than blood)	Initial positive (+) smear and culture	No
Any virus from blood, CSF or other sterile fluids/sites	Initial positive (+) culture Initial positive (+) PCR	No
Group A Streptococcus from any specimen where diagnosis is fasciitis	Initial positive (+) smear and culture	No
Herpes Simplex Virus	Positive (+) culture or PCR in term pregnant female or baby < 6 months old	No
Aminoglycoside level	>2x upper limit of therapeutic range	Yes