Policy: Critical Results

ORGANIZATIONAL: Affects two or more departments.							
Folder	Organizational Choices: Tests and Specimens			**Sub-Folder** (If Applicable)	**Communication**		
Original Effective Date	7/1/2005	**Scope**	*Laboratory, Respiratory, Non-invasive Cath Lab, Radiology*				
Approved (Approver/Date)	Lab Medical Director, June 2020, Multi-Disciplinary Policy Committee July 2020, MEC July 2020						
Last Reviewed/ Revised Date	7/30/2020	**OSHA Category** (If Applicable)	Not Applicable	**Standard** (If Applicable)	NPSG.02.03.01	**Number of pages**	7

PURPOSE:
Critical results may be initially called to the licensed caregiver or the nurse, but must be reported to the ordering practitioner within one hour (from availability of result to reporting to the ordering practitioner).

GUIDELINES:
All critical results will be notified to the ordering practitioner within one hour.

Definition of Critical Results: Test results that are abnormal to a degree that may indicate a life threatening situation. *(The Joint Commission, 2020 Comprehensive Accreditation Manual for Hospitals, NPSG-2).*

Departments Reporting Critical Results:

- Laboratory
- Respiratory Therapy
- Non-Invasive Cath Lab
- Radiology

PROCEDURE:

1. When the critical result is called, record the critical result and read it back to the staff person who called to report the result. ***Please note****: The Lab and Respiratory Therapy are required to document the first and last name of the person to whom the critical result has been reported to. This is part of the College of American Pathologists (CAP) requirements.*
2. Begin the process of contacting the ordering practitioner immediately by using his/her contact information as outlined in the HIS.
3. If the ordering practitioner cannot be reached, staff may try any of the following options:
    a. Utilize the chain of command

b. Contact a partner of the ordering practitioner or on-call practitioner for ordering practitioner
c. Contact the medical staff department chair
d. Contact the Vice President, Chief Medical Officer.

4. If the patient is deteriorating and all attempts to receive orders from a physician based on the critical result have been unsuccessful, notify the Rapid Response Team.

❖ If a critical result is expected and specific parameters have been given by the ordering practitioner, the critical result may not have to be called.

❖ **CRITICAL RESULTS FOR LABORATORY:**

CHEMISTRY - RESULT	**LOW (≤)**	**HIGH (≥)**	**UNITS**
1 HOUR P.P. GLUCOSE - (1PP)	40	450	mg/dL
2 HOUR P.P. GLUCOSE – (2PP)	40	450	mg/dL
CALCIUM – SERUM – (CA)	6.6	13.0	mg/dL
CREATININE-SERUM – (CREAT)	---	7.4	mg/dL
GLUCOSE-SERUM – (GLU)	40	450	mg/dL
GLUCOSE-WHOLE BLOOD – ACCU-CHEK	40	450	mg/dL
MAGNESIUM-SERUM – (MG)	1.0	4.70	mg/dL
POTASSIUM-SERUM – (K)	2.9	6.0	mmol/L
SODIUM-SERUM – (NA)	125	150	mmol/L
SODIUM-WHOLE BLOOD – (NAWB)	125	150	mmol/L
TOTAL BILIRUBIN – (TBILI)	---	15.0	mg/dL
UREA NITROGEN – (UN)	---	100.0	mg/dL

TDM – RESULT	**LOW (≤)**	**HIGH (≥)**	**UNITS**
ACETAMINOPHEN – (ACETA)	---	200.0	ug/mL
AMITRIPTYLINE – (AMIT)	---	450	ng/mL
AMITRIPTYLINE+NORTRIPTYLINE – (TAMIT)	---	450	ng/mL
CARBAMAZEPINE (TEGR) – (CARBM)	---	15.00	ug/mL
DIGOXIN LEVEL – (DIG)	---	2.00	ng/mL
DILANTIN/PHENYTOIN – (DIL)	---	30.00	ug/mL
GENTAMICIN PEAK – (GENTP)	---	12.00	ug/mL
GENTAMICIN (RANDOM) – (GENTR)	---	12.00	ug/mL
GENTAMICIN TROUGH – (GENTT)	---	2.0	ug/mL
LIDOCAINE LEVEL – (LIDO)	---	9.00	ug/mL
LITHIUM LEVEL – (LI)	---	1.7	mEq/L
NORTRIPTYLINE LEVEL – (NORT)	---	450	ng/mL
PHENOBARBITAL LEVEL – (PHENO)	---	60.00	ug/mL
PRIMIDONE/MYSOLINE – (PRIM)	---	25.0	ug/mL
PROCAINAMIDE LEVEL – (PROC)	---	12.0	ug/mL
QUINIDINE LEVEL – (QUIN)	---	10.00	ug/mL
SALICYLATE LEVEL – (SALIC)	---	30.00	mg/dL

THEOPHYLLINE LEVEL – (THEO)	---	25.00	ug/mL
TOBRAMYCIN PEAK – (TOBP)	---	12.00	ug/mL
TOBRAMYCIN (RANDOM) – (TOBR)	---	12.00	ug/mL
TOBRAMYCIN TROUGH – (TOBT)	---	2.0	ug/mL
TDM – RESULT	**LOW (≤)**	**HIGH (≥)**	**UNITS**
VALPROIC ACID LEVEL – (VAL)	---	130.0	ug/mL
VANCOMYCIN PEAK – (VANCP)	---	50.0	ug/mL
VANCOMYCIN (RANDOM) – (VANCR)	---	40.0	ug/mL
VANCOMYCIN TROUGH – (VANCT)	---	25.0	ug/mL
MB/TROPONIN– FIRST ABNORMAL RESULT WILL BE CALLED			

TOXICOLOGY - RESULT	**LOW (≤)**	**HIGH (≥)**	**UNITS**
ALCOHOL, BLOOD – (ALC)	---	250	mg/dL
ALCOHOL, URINE – (ALCU)	---	400	mg/dL
ALL POSITIVE DRUG SCREENS ON NEWBORNS AND OB PATIENTS WILL BE CALLED			

HEMATOLOGY - RESULT	**LOW (≤)**	**HIGH (≥)**	**UNITS**
HEMATOCRIT – (HCT)	21.0	64.0	%
CENTRAL HEMATOCRIT – (HCTC)	21.0	65.0	%
HEMOGLOBIN – (HGB)	7.0	21.0	g/dL
PLATELET COUNT – (PLT)	30,000	1,000,000	*U*L
WHITE BLOOD COUNT – (WBC)	1000	30,000	

COAGULATION – TEST	**LOW (≤)**	**HIGH (≥)**	**UNITS**
PROTIME – (PPT) – INR:			
WARFARIN	---	4.5	
MECHANICAL HEART VALVE	---	4.5	
PTT (APTT) – (NON-ANTICOAGULATED)	---	67	SECONDS
(ANTICOAGULATED)	---	125	

Microbiology Lab:

If any of the following tests are positive, the results must be called immediately:

- Spinal Fluids, Gram Stains
- AFB Smear or Culture – also call Infection Control

- CSF Culture
- Blood Culture
- Malaria Smear
- All sterile Fluids (Synovial, Pleural, etc.)

CRITICAL RESULTS FOR NON-INVASIVE CATH LAB:

EKG

- Heart rates less than 50 bpm
- Heart rates greater than 120 bpm
- Acute MI

ECHOCARDIOGRAM

- Presence of pericardial fluid with tamponade
- Valve/chamber vegetation or thrombus or mass
- Unknown EF < 35%

STRESS ECHOCARDIOGRAM

- Left Ventricle Wall Motion Abnormality
- ST segment depression >/= 2mm
- ST segment elevation

CAROTID DOPPLER

- 80 – 99% stenosis of the common or internal carotid artery
- Unknown occlusion of internal or common carotid artery
- "Trickle flow" of common or internal carotid artery

VENOUS DOPPLER

- Presence of undocumented or unknown thrombus
- Propagation of known/documented thrombus

ARTERIAL DOPPLER

- Occlusion of limb arterial supply with signs of absent or critically decreased blood flow such as paresthesia, paralysis, pallor or pain (severe and or pulselessness)

CRITICAL RESULTS FOR RESPIRATORY THERAPY:

ARTERIAL BLOOD GAS CRITICAL RESULTS - critical results if OUTSIDE the following ranges:

- pH: 7.20 - 7.60
- pCO2: 20- 70
- PO2: <50
- NA +: <120 or >150
- CA +: ION No Critical Values
- GLU: If results are >450 mg/dl or <40 mg/dl a lab verification must be ordered
- BILI: If results are >15 mg/dl then a lab verification must be ordered

CAPILLARY BLOOD GAS CRITICAL RESULTS – critical results if OUTSIDE the following ranges:

- pH: 7.20 – 7.60
- pCO2: 20 – 70
- NA +: 120 – 150
- K +: 2.9 – 6.0
- CA+: ION No critical values
- GLU: For results >450 mg/dl or <40 mg/dl a lab verification must be ordered

CRITICAL RESULTS FOR RADIOLOGY:

Radiologist only needs to treat these conditions as "critical" if:

1. There is a high degree of certainty that the patient has one of these conditions, and
2. There is a reasonable chance that the ordering provider was not aware of the condition when the test was ordered

Anatomical Area	Rad Category Conditions* Complete Alert within 1 hour	Orange Category Conditions* Complete Alert within 8 hours	Yellow Category Conditions* Complete Alert within 3 days
CNS	Acute stroke		
	Brain tumor (mass effect)		Brain tumor (no mass effect)
	Cervical spine fracture		
	Depressed skull fracture		
	Previously Unknown Cerebral hemorrhage/hematoma		
	Spinal cord compression		
Neck	Carotid artery dissection		
	Critical carotid stenosis >90%		
	Epiglottitis		
Breast			Bx recommendation on mammogram
Chest	Acute Pulmonary embolism - Intermmediate or high probabitliy		
	Aortic dissection		
	Impending Rupture of Aneurysm		
	Mediastinal emphysema		
	Presence of Aortic Aneurysm >6cm		
	Previously Unknown Pneumothorax >2cm		
	Ruptured Aneurysm		
Abdomen	Appendicitis		
	Bowel obstruction		
	Emphysematous Cholecystitis		
	Free air in abdomen w no recent surgery		
	Ischemic bowel		
	Portal venous air		

	Retroperitoneal hemorrhage		
	Traumatic visceral injury		
	Volvulus		
Uro-genital	Biophysical Profile Score <5		
	Ectopic pregnancy		
	Fetal demise		
	Fetal hydrops		
	IUGR		
	Placental abruption		
	Placental previa near term		
	Testicular or ovarian torsion		
Vascular	DVT or vascular occlusion		
General	Previously Unknown Abscess >4cm		
	Significant line or tube misplacement		

Critical results have been identified by the Medical Director of Radiology in accordance with the American College of Radiology. These results must be communicated within one hour to a healthcare provider directly responsible for the patient. The healthcare provider can be the attending physician, physician's assistant, nurse practitioner, or RN directly involved in the care of the patient.
This direct communication must be documented in the written report. The documentation must indicate the time, date, caller and the individual receiving the critical test result. The Radiologist must use the terminology "critical Results" when communicating to the healthcare provider. In addition to calling the healthcare provider, the critical result must be faxed to SEMH for QC and reporting purposes.

1. IR procedure – Critical results for inpatients must be called to the physician. If the physician cannot be reached then the critical result must be called to the patient's primary nurse. The individual receiving the critical test result will write the result in an appropriate place in the patient's medical record. The individual receiving the critical test result will then read back the result from the medical record to verify correctness.

2. ED Procedure:
    a. Emergency Department patients who have specialized exams such as CT, Ultrasound, MR, or Nuclear Medicine will have reports called and faxed to the ordering physician, APRN, or charge nurse. The interpreting physician must document the time, date, and receiving individual in the written diagnostic report.
    b. The Emergency Department Physician will initially review routine images for their patients. These exams will also be read by a radiologist. If critical results are found with the radiologist's reading, the critical results plan will be initiated.

3. OP Procedure
    a. Critical results for outpatients must be communicated to the referring physician, other healthcare provider, or an appropriate representative. If these individuals

cannot be reached, the interpreting physician can communicate the need for emergent care to the patient, responsible guardian if the patient is still in the department. Otherwise, they can contact an imaging manager, director to follow through with getting the needed care for the patient. The manager can then:

i. Contact a partner or on call practitioner of the ordering practitioner.
ii. Contact the Medical Staff Department Chair
iii. Contac the CMO

b. Critical results for outpatients must be communicated with the referring physician, other healthcare provider, or an appropriate representative. If these individuals cannot be reached, the interpreting physician must communicate the need for emergent care to the patient, responsible guardian, or to the Technologist responsible for the exam. The patient must be directed to the nearest emergency room for immediate care.
c. Stat exams where the physician requests immediate results, but the diagnostic procedure does not produce critical results, will also be handled with direct communication. This will also be documented with time, date, caller, and the individual receiving the results.

RELATED POLICIES/PROCEDURES:

- Arterial Blood Gas Critical Values (Respiratory Therapy)
- Capillary Blood Gas Critical Values (Respiratory Therapy)
- CV Services – Non-Invasive – Critical Results and Communication (Non-Invasive Cath Lab)
- Critical Results Communication (Radiology)
- General Policy of Laboratory Reporting (Laboratory)
- Chain of Command (Organizational)
- Nursing Management/Charge Nurse – When to Notify (Organizational)

REFERENCES:

Joint Commission Resources. (2020). Comprehensive Accreditation Manual for Hospitals. NPSG.02.03.01