STAT TESTING - CORE LABORATORY

BLOOD	BLOOD	URINE
Potassium	CBC/Differential	Urinalysis
Sodium	Hemoglobin	Pregnancy Test
Chloride	Hematocrit	Sodium
CO_2, Total	WBC	Potassium
Ionized Calcium	Platelet Count	Osmolality
Glucose	Reticulocyte count	Drug screens
BUN	Sickle Cell Prep	
Calcium, Total	Sedimentation Rate	
Creatinine	PT	
Bilirubin Total & Conjugated	PTT	
Osmolality	D-dimer	
Amylase	Fibrinogen	
Total Protein	B-hydroxybutyrate	
Ammonia		
Blood Gases		**FLUIDS**
Magnesium		Cell Count and Differential
Pregnancy Testing		CSF Glucose
Troponin I		CSF Protein
Pro BNP		
All Drug Levels		

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STAT TESTING – MICROBIOLOGY

MICROSCOPIC	SEROLOGY	MOLECULAR
Body Fluid Gram Stain*	Heterophile Antibody	Enterovirus PCR in CSF
	HIV 1, 2 Antibody/Antigen (needle stick exposure)	SARS-CoV-2 PCR in respiratory specimens
	Cryptococcal Antigen in serum/CSF	Influenza A/B/RSV/SARS-CoV-2 PCS in respiratory specimens
		Respiratory Pathogen PCR Panel (17 pathogens) in respiratory specimens
		HSV 1/2 PCR
		VZV PCR
		Streptococcus pyogenes PCR in pharyngeal swabs
		Meningitis/Encephalitis Pathogen PCR Panel (14 pathogens) in
		Gastrointestinal Pathogen PCR Panel (23 pathogens) in stool
		Norovirus PCR in stool
		Trichomonas vaginalis PCR in urine
		Chlamydia trachomatis/Neisseria gonorrhoeae PCR

*Does not include urine.

REFLEXIVE TESTING – CORE LABORATORY

ORDERED	REFLEXIVE TEST	WHEN DONE
WBC Count	Manual Differential	WBC out of reference range or electronic flag
HGB/HCT	Repeat HGB/HCT, on dilution if necessary	H/H out of reference range or electronic flag
CBC	Manual Differential	Electronic flags
Platelet Count	Repeat platelet count • dilution if >1,000K/µL • manual estimate if <50K/µL	If platelet count out of range or electronically flagged
Sickle Prep	Hemoglobin electrophoresis (Capillary zone electrophoresis)	Positive sickle prep except for known sickle cell positive patients
Malaria Prep or Parasitemia Percentage	Binax Alternative Malarial confirmation	Ordered for the first time
Hemoglobin electrophoresis (Capillary Zone electrophoresis)	Hemoglobin electrophoresis (acid citrate)	Abnormal hemoglobin pattern (except for known sickle positive patients)
Peripheral blood smear	Parasitemia percentage	Malaria Parasites
Peripheral blood smear	Director's Review[1,2]	WBC is < 2.0 K/µL or > 30 K/µL & if never previously reviewed; if platelet <50K/µL of >1,000 K/µL and not previously reviewed
Peripheral blood smear	Director's Review	Abnormal WBC morphology
Peripheral blood smear	Director's Review	Abnormal WBC differential (including immature myeloid cells, greater than 10% other than band neutrophils
Peripheral blood smear	Director's Review	Significant abnormal RBC morphology (3+)
Peripheral blood smear	Director's Review	MCV < 65fL
Peripheral blood smear	Director's Review	Any slide with cellular elements, which the technologist questions as abnormal. Any slide that contains additional findings (parasites, crystals, pathogens) which warrant professional interpretation. **Note:** Peripheral smears for parasitemia percentage, no matter what the parasitemia percentage, must have a Director's review, if ordered for the first time each

		admission.
PTT Mixing Studies	PTT	If PTT is normal, the test is credited and the comment, "Test is not warranted-normal PTT obtained."
Body fluids	Director's Review	CSF leukocytes >50/μL (tech to add manual differential if not ordered by provider)
Body fluids	Director's Review	All CSF fluids from Heme/Onc patients. If Pathology requisition accompanies specimen, Director review is not required.
Body fluids	Director's Review	Any slide with cellular elements, which the technologist questions as abnormal; Any slide that contains additional findings (parasites, crystals, pathogens) which warrant professional interpretation
Hemoglobin electrophoresis	Director's Review	All patient results
Platelet aggregation studies	Director's Review	All patient results
Complex coagulation evaluation	Director's Review	All patient results, including Thromboelastography (TEG)
Other complex hematology tests as needed	Director's Review	Based on test performed
Low molecular weight heparin (LMWH) level	Activated partial thromboplastin time (aPTT)	The aPTT is ordered when LMWH > 1.5 U/mL. This helps detect possible unfractionated heparin contamination in sample.
Thrombin time	Heparin neutralized clotting times (PT/aPTT)	The heparin neutralized clotting times are ordered when the thrombin time is prolonged. This helps detect possible unfractionated heparin contamination in sample.
Lyme serology (IgG and IgM) with Reflex	Lyme Western Blot IgG, IgM (Immunoblot)	If Lyme IgG is positive If Lyme IgM is equivocal or positive
TSH with Reflex FT4	FT4	In non-hospitalized patients without or suspected thyroid disease: If TSH is above or below of reference range, FT4 will be performed
Urine drug screen with Reflex confirmation (Send Out)	Individual confirmatory test on presumptive positive result	All presumptive positive results of urine drug screen (Amphetamines/Methamphetamines, Barbiturates, Benzodiazepines, Cocaine, Opiates, THC, PCP, Ecstasy (MDMA), Methadone)

Urinalysis with Reflex Culture	Urine culture	Any of the following parameter results: Bacteria is moderate or many; Nitrites is positive; WBC >= 5 cell /HPF; Leukocyte esterase >= trace, 1+, or >=25
UA with reflex Pregnancy for females >12	Urine pregnancy test	If female >12 years
UA with reflex Culture *and* reflex	Urine pregnancy test, Urine Culture	Same rules as above
Cryptococcal Ag-CSF w/ Reflex Titer	Crypto Titer CSF	When Cryptococcal Ag-CSF positive
Cryptococcal Ag-Serum w/ Reflex Titer	Crypto Titer SER	When Cryptococcal Ag-Serum positive
HIV-1,2 (4th Gen) w/ Reflex Confirmation	HIV Ag/Ab 4th Generation with reflexes	When HIV-1,2 (4^{th} Gen) positive
RPR w/ Reflex Titer and FTA-ABS	RPR titer, FTA ABS IgG	When RPR positive
POC Oraquick HIV Screen w/Reflex Confirmation	HIV 1,2 (4th Gen) with reflex Confirmation	When POC Oraquick HIV Screen is reactive

NOTE:

1. Director's Review is not performed on peripheral smears on patients from the hematology/oncology clinic and unit or if the attending provider on record is a Hematology/Oncology attending.
2. Neonates frequently often have a marked left shift often with a few metamyelocytes and nucleated RBCs present and abnormal 2+ RBC morphology. The tech has discretion when to call Director's review.

REFLEXIVE TESTING AND PROCESSING – BLOOD BANK

ORDERED	REFLEXIVE TEST	WHEN DONE
Type and Screen	Serological weak D	If D negative and sample is from potential stem cell donor
	Antibody identification & patient antigen typing	If positive antibody detection test (screen)
	Director's Review	Antibody review, restrictions placed by Medical Director
	DAT Complement & IgG	If autocontrol is positive
	Elution	If DAT IgG positive upon initial Identification. Repeat testing dependent on transfusion history and change in strength of DAT results.
	Prewarmed antibody screen	If cold agglutinin identified
	Saline antibody screen	If warm agglutinin/antibody
	Antiglobulin test for passively acquired isoaggutinins	If neonate <4 months old or if ABO identical units are incompatible
	Complete RBC Phenotyping (molecular/serological)	For all new sickle cell/thalassemia /chronically transfused patients and select patients with autoantibodies
Red Blood Cells, Platelets	Irradiation of unit	To prevent transfusion associated graft versus host disease due to proliferation of the donor leukocytes in the patient. May be waived in life threatening bleeding events or with approval of transfusion medicine physician.
	Leukocyte reduced	Cellular blood products are filtered to remove most of the leukocytes after collection to prevent HLA sensitization, febrile non-hemolytic transfusion reactions and CMV transmission.
Crossmatch Blood	All tests above and antigen typing of units (molecular/serological)	If clinically significant R B C antibody identified,or if the patient is on antigen matched protocol.
	Hemoglobin S (sickle) test of unit	If patient has SCD/thalassemia/or other hemoglobinopathy or < 4 months of age.
	Pre-warmed crossmatch	If cold agglutinin identified

	Rh, Kell and selected typing of patient	For automated RBC exchange when complete RBC molecular phenotype not on file

Transfusion reaction	Director review	Whenever a transfusion reaction is ordered
Isohemagglutinin titer	Blood type	If no blood type is on file, the blood type is required for interpretation of results

REFLEXIVE TESTING – MICROBIOLOGY

ORDERED	REFLEXIVE TEST	WHEN DONE
Culture or PCR detection of Bacteria, Fungi, or Mycobacteria	Culture (if necessary), identification and/or antimicrobial susceptibility testing	Clinically significant bacteria, fungi, and mycobacteria detected
RPR	RPR Quantitative Test and FTA-ABS confirmatory test (reference laboratory)	RPR positive result
HIV-1/2 Antibodies/HIV-1 Antigen (4th generation test)	HIV-1/2 Antibody Differentiation and confirmation assay (reference laboratory)	HIV-1/2 Antibodies/HIV-1 Antigen results repeatedly reactive
Cryptococcal Antigen	Cryptococcal Antigen Titer	Cryptococcal Antigen positive result
Aerobic or anaerobic blood culture	Multiplex PCR to rapidly identify gram positive, gram negative, or yeast pathogens and rapid phenotypic antimicrobial susceptibility testing when feasible	Positive aerobic or anaerobic blood culture
Bacterial culture	Multiplex PCR to rapidly detect five different plasmid-borne carbapenemase genes	Growth of an Enterobacteriales, *Pseudomonas aeruginosa*, or *Acinetobacter baumannii* exhibiting phenotypic carbapenem resistance
Clostridium difficile	PCR test	When GDH Antigen and Toxin A/B Antigen test results are discrepant

CRITICAL CALL VALUES

TEST	LOW	HIGH	COMMENT
Troponin		Upper limit of normal range	1st Instance
Acetaminophen		≥ 200 µg/mL	
Alcohol		≥ 200 mg/dL	
Ammonia		≥ 90 umol/L	
Any BLAST on peripheral blood	Any Blast seen		Critical value called to provider once per 7 day period.
aPTT		> 120 seconds	
Blood Culture (Aerobic/anaerobic/fungal)	Positive Gram Stain Result		
Body Fluid (Sterile) Gram Stain/Culture – Pericardial, Pleural, Synovial, Peritoneal, etc	Positive Gram Stain Result		
Carbamazepine		≥ 15.0 µg/mL	
Carboxyhemoglobin		≥ 20 %	
CO2	<10 mmol/L		
Cryptococcal Antigen – CSF/Serum	Positive Result		
CSF Gram stain/Culture	Positive Gram Stain Result		
CSF: Meningitis Encephalitis PCR	Detected PCR Result		
Cyclosporin		≥ 800 ng/mL	
Digoxin		≥ 3.0 ng/mL	
FK506		≥ 25 ng/mL	
Fluid Differential	Any microorganism seen		Exception: Bronchiolar lavage (BAL)
Free Phenytoin		≥ 3.0 µg/mL	
Glucose	<40 mg/dL	> 400 mg/dL	
Hemoglobin	<6 g/dL	> 25 g/dL	
HSV PCR - Blood	Detected PCR Result		
HSV PCR - CSF	Detected PCR Result		

INR		> 4	
Joint/Synovial Fluid PCR	Detected PCR Result		
Lithium		≥ 1.5 mmol/L	
Magnesium	<1.0 mg/dL	> 4.0 mg/dL	
Malaria smear (thin prep)	Any parasite seen		1st instance only
Methemoglobin		≥ 10 %	+Page Lab. Med. Director On-Call

pH, arterial	<7.15	> 7.55	
Phenobarbital		≥ 65 µg/mL	
Phenytoin		≥ 25 µg/mL	
Phosphorus	<1.0 mg/dL		
Platelets	<20,000/uL	> 1 million/mcL	Exception: KHOP (Known Heme/Onc Patients)
PO2, arterial	<20 mmHg		
Potassium	<2.8 mmol/L	> 6.5 mmol/L	Exception: Call ICU for < 2.5 mmol/L (and do not call ICU for 2.5-2.8, per ICU protocol
Sirolimus		≥ 25 ng/mL	
Sodium	<125 mmol/L	> 160 mmol/L	Exception: Call ICU for <120mmol/L or >160mmol/L, per ICU protocol
Theophylline		>20 ug/mL >10 ug/mL (neonates)	
Total Bili		> 15.0 mg/dL for 0-4 months	
Total Calcium	<7.0 mg/dL	> 12.5 mg/dL	
Uric Acid		≥ 10.0 mg/dL	
Valproic Acid		≥ 150 ug/mL	
Vancomycin Trough		≥ 30 ug/mL	
WBC count		> 30 K/µL	Critical value called to provider once per 7 day period.
Absolute Neutrophil Count		< 0.5 K/µL	Critical value called to provider once per 7 day period.

CATEGORY A AGENTS

The U.S. public health system and primary healthcare providers must be prepared to address various biological agents, including pathogens that are rarely seen in the United States. High- priority agents include organisms that pose a risk to national security because they can be easily disseminated or transmitted from person to person; result in high mortality rates and have the potential for major public health impact; might cause public panic and social disruption; and require special action for public health preparedness.

Anthrax (*Bacillus anthracis*)
Botulism (*Clostridium botulinum* toxin)
Brucellosis (*Brucella* sp)
Glanders (*Burkholderia mallei*)
Melioidosis (*Burkholderia pseudomallei*)
Plague *(Yersinia pestis)*
Smallpox (variola major)
Tularemia (*Francisella tularensis*)
Viral hemorrhagic fevers (filoviruses [e.g., Ebola, Marburg] and arenaviruses [e.g. Lassa, Machupo])