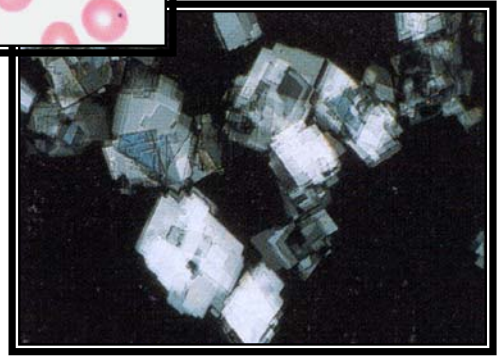
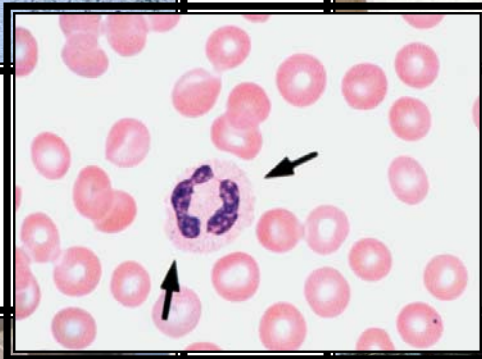


# Clinical Laboratory

A Specimen Management Guide for Blood Bank, Chemistry, Hematology, Pathology, Serology and Urinalysis, 1<sup>st</sup> Edition (2002)



Medical Staff and Nursing Version

A Product of the San Joaquin General Hospital Laboratory

# Table of Contents

	Page
<b>Introduction:</b>	
Purpose	<i>i</i>
Labeling	<i>i</i>
Safety	<i>vi</i>
Transport Policy	<i>vi</i>
<b>Summary of Laboratory Tests</b>	
Panels	<i>viii</i>
Individual Tests and Panels	<i>xii</i>
<b>General Laboratory Devices / Media:</b>	
Plain Sterile Red Top 10 mL Glass Tube; No Additives	1
Light Blue Top 4.5 mL Glass Tube; Buffered Citrate Sodium 0.129M	4
Light Green Top 4.0 mL Glass Tube; Plasma Separation Tube (PST) – Gel & Lithium Heparin	5
Light Gray Top 5.0 mL Glass Tube; NFX – Potassium Oxalate / Sodium Fluoride	9
Lavender Top 4.0 mL Plastic Tube; 7.2 mg K <sub>2</sub> EDTA	11
Lead Level - Lavender Top 4.0 mL Plastic Tube; 7.2 mg K <sub>2</sub> EDTA	13
Gold Top 5.0 mL Plastic Tube; Serum Separation Tube (SST) – Gel & Clot Activator	14
White Top 5.0 mL Plastic Tube; Plasma Preparation Tube (PPT) – K <sub>2</sub> EDTA	18
Lavender Top 9.0 mL Plastic Tube; 1.8 mg K <sub>3</sub> EDTA	19
Arthritis Panel	23
Cord Blood Panel	24
General health Panel	26
Hepatitis Panel (Acute)	27
Obstetrics Panel	28
Sterile Specimen Cup	30
24 Hour Urine Collection Container	32
CSF Sterile Graduated Manometer Tube Kit	34
Body Fluids (other than CSF and Urine)	35
SERACULT Test Card for Fecal Occult Blood	36
Miscellaneous Tests	37
Rhogam	38

	Page
<b>Neonates Devices / Media:</b>	
Lavender Top – Microtainer Brand Tubes; with K <sub>2</sub> EDTA	39
Neonatal Transfusion / Limited Donor Program	41
Red Top – Microtainer Brand Tubes; No Additives	43
Light Green Top – Microtainer Brand Tubes; Plasma Separation Tube (PST) – Gel & Lithium Heparin	45
Light Blue Top Glass Tube; Buffered Citrate Sodium (Tube Specially Prepared by Laboratory)	48
Sterile Specimen Cup	49
Newborn PKU Screening Test	50
CSF Sterile Graduated Manometer Tube Kit	51
Body Fluids (other than CSF and Urine)	52
<b>Point of Care (POC) Testing Devices / Media:</b>	
Abbott PCX Glucometer	53
Urinalysis Dipstick	54
SERACULT Test Card for Fecal Occult Blood	55
Urine hCG (Pregnancy) Test	56
<b>Pathology Devices / Media:</b>	
10% Neutral Buffered Formalin v/v (Various sizes & volumes)	57
Body Fluids and Fine Needle Aspirates (FNA)	59
Bone Marrow Studies	60
Pap Smear	62
Example Blank Requisition Form (Cytology, FNA and Pap Smear)	63
Example Requisition Form (Pap Smears)	63a
<b>Sendouts to Reference Laboratories - Devices and Required Volumes:</b>	
	64
<b>References</b>	71

**This guide is not conclusive. If a particular test is desired and is not included in this guide, please refer to the “Send Outs to Reference Laboratory” section (p.64) or call one of the following departments for specimen selection, collection and management requirements:**

- |  |                       |
|--|-----------------------|
| <b>1) Laboratory Send Outs</b>           | <b>(209) 468-6961</b> |
| <b>2) Laboratory Specimen Processing</b> | <b>(209) 468-7059</b> |

**If there are any suggestions or problems please feel free to call our message hotline at 468-6068.**

# Introduction

## Purpose

The effectiveness of a laboratory is relied upon the importance of specimen management. This involves specimens that are appropriately selected, collected, labeled and transported to the laboratory. If a specimen is not collected or managed properly, the laboratory can do very little or nothing in the patient care and/or further investigations. The proper management of patient specimen is critical in achieving accurate diagnosis. This accuracy directly affects patient care, treatment and length of stay. It also affects the hospitals infection control, overall hospital cost, laboratory costs and influences laboratory efficiency. (1,2)

It is the responsibility of the laboratory, to communicate its needs, as well as understand the needs of the physicians involved. Communication between laboratorians and the medical staff is imperative for accurate and efficient care that the patient receives. At times, physicians and microbiologist need to have constructive interaction with one another. This may involve asking question to clarify test requests, suggestion of equal but more cost effective alternatives, requesting additional information, or even rejecting a specimen due to improper care of the specimen prior to its arrival at the laboratory. (1)

Just as there are standards for patient care that the clinician must follow, there also are standards for laboratory practice that the laboratorians must follow. Challenges are met every day as to the integrity of a patient specimen. At times, patient specimens should not be processed due to poor management of the specimen. This manual is designed to avoid improper management of patient specimen by assisting all the members of the health care team that are involved in the process of specimen selection, collection, labeling and transporting to the laboratory. This will ensure the likelihood of recovering viable organisms for culture. Hence, the “Clinical Microbiology, A Specimen Management Guide” was created. (1)

## Labeling

Labeling of specimens is of high importance. All specimens should be properly labeled to ensure that an accurate diagnosis is being reported on the correct patient. Also of importance is that the correct tests are being applied to the correct container or specimen type. When labeling, make sure the specimen container belongs to the patient in question. The label should include the patients name, medical record number or date of birth, date of collection, time of collection, **First initials and complete Last name** of collector and anatomical site when applicable (i.e. left arm, right foot, pleural fluid, ascites fluid, liver tissue, skin tissue, etc., etc...)(See **Figure A:** example label). The worst scenario would involve diagnosis given on a patient where medical treatment is carried out due to improper labeling, which may result in patient complications or

even death. So it is very important to take your time in correctly labeling patient specimen to ensure correct diagnosis. (1,2)



**Figure A**

## **Safety**

Biosafety is of utmost importance in the laboratory. It is a concern to the laboratorian and to other health care workers in a health care system. To keep abreast of new methods and techniques that insure a safe working environment, please refer to your hospital safety manual. Related policies for safety in specimen management include the following:

- 1) All specimen collection procedures must be performed while wearing gloves, a laboratory coat, and, where appropriate, masks and /or goggles
- 2) All primary specimen containers should be leak-proof and should be transported within a sealable, leak-proof plastic bag having a separate compartment for paperwork
- 3) Never transport syringes with needles to the laboratory. Instead, the contents should be transferred to a sterile tube or the needle should be removed with a protective device, and the syringe should be recapped and placed in a sealable, leak-proof plastic bag
- 4) Do not transport leaking specimen containers to the laboratory or process them. (2)

## **Transport Policy**

All specimens must be promptly transported to the laboratory, preferably within 1 hour of collection. If specimens are not processed immediately, store specimens for bacterial culture in refrigerator for not more than 24 hours. Optimal transport of clinical specimens, including

anaerobic cultures, depends primarily on the volume of material obtained. Submit small amounts within 15-30 minutes of collection; biopsy tissue can be maintained for up to 20-24 hours, if stored at 25 °C in an anaerobic transport system. Environmentally sensitive organisms including *Shigella* spp., *N. gonorrhoeae*, *Neisseria meningitidis*, and *Haemophilus influenzae*, which are sensitive to cold temperatures, should be process immediately. Never refrigerate spinal fluid, genital, eye, or internal ear specimens or specimens suspected of containing these agents. (1)

# Summary of Laboratory Tests for Blood Bank, Chemistry, Hematology, Pathology, Serology and Urinalysis

<u>Test Name</u>	<u>OC (Keane) Mnemonic</u>	<u>Page</u>
<b>Panels:</b>		
<u>Arthritis Panel:</u>	ARTHP	23
Uric Acid (URIC)		
Sedimentation Rate (ESR)		
Anti Nuclear Antibodies, Screen (ANA)		
Rheumatoid Factor (RF)		
<u>Basic Metabolic Panel:</u>		
Adults	BMP	5
Neonates	BMP	45
Sodium (NA)		
Potassium (K)		
Chloride (CL)		
Carbon Dioxide (CO2)		
Glucose (GLU)		
Urea Nitrogen (BUN)		
Creatinine (CRE)		
Calcium (CA)		
Anion Gap (ANION)		
<u>Cardiac Panel:</u>		
Adults	CKMB	5
Neonates	CKMB	45
Creatine Phosphokinase, Total (CK)		
Creatine Phosphokinase-MB Isoenzyme (a.k.a. CK-2)(CKMB)		
CK / CKMB Index (CKMI)		
<u>Cerebrospinal Fluid Analysis (Cell Count with Diff):</u>		
Adults	CSFCT	34
Neonates	CSFCT	51
<u>Complete Blood Count:</u>		
Adults	CBC	11
Neonates	CBC	39
Automated Differential (Adults only)		
Manual Differential (MDIFF)(Neonates only)		
White Blood Cells (WBC)		
Red Blood Cells (RBC)		
Hemoglobin (HGB)		
Hematocrit (HCT)		
Mean Corpuscular Volume (MCV)		
Mean Corpuscular Hemoglobin (MCH)		
Mean Corpuscular Hemoglobin Concentration (MCHC)		
Red Cell Distribution Width (RDW)		
Platelet Count (PLT)		
Mean Platelet Volume (MPV)		
WBC Differential Count		

<u>Test Name</u>	<u>OC (Keane) Mnemonic</u>	<u>Page</u>
<u>Comprehensive Metabolic Panel:</u>		
Adults	CMP	5
Neonates	CMP	45
Sodium (NA)		
Potassium (K)		
Chloride (CL)		
Carbon Dioxide (CO2)		
Glucose (GLU)		
Urea Nitrogen (BUN)		
Creatinine (CRE)		
Calcium (CA)		
Alkaline Phosphatase (ALP)		
Aspartate Aminotransferase (AST)		
Alanine Aminotransferase (ALT)		
Bilirubin Total (BILT)		
Total Protein (TP)		
Albumin (ALB)		
Globulin (GLO)		
Anion Gap (ANION)		
 <u>Cord Blood Panel:</u>	 CORD	 24
Blood Bank, ABO and RH Type (BBTYPE)		
Blood Bank, Direct Antiglobulin Test, Coombs' Test (BBDAT)		
Rapid Plasma Reagin Test (RPR)		
 <u>Disseminated Intravascular Coagulopathy Panel:</u>	 DIC	 4
Activated Partial Thromboplastin Time (APTT)		
D-Dimer (DDIMER)		
Fibrinogen (FIB)		
International Normalized Ratio (INR)		
Prothrombin Time (PRO)		
 <u>Fluid Analysis (Cell Count with Diff):</u>		
Adults	FLCCT	35
Neonates	FLCCT	52
 <u>General Health Panel:</u>	 GHP	 26
Comprehensive Metabolic Panel (CMP)		
Complete Blood Count (CBC)		
Thyroid Stimulating Hormone (TSH)		
 <u>Glucose Tolerance Test Panel (1 Hour):</u>	 GTT1H	 9
Glucose Fasting (GLUF)		
Glucose 1 Hour (GLU1)		
 <u>Glucose Tolerance Test Panel (2 Hour):</u>	 GTT2H	 9
Glucose Fasting (GLUF)		
Glucose 1 Hour (GLU1)		
Glucose 2 Hour (GLU2)		
 <u>Glucose Tolerance Test Panel (3 Hour):</u>	 GTT3H	 9
Glucose Fasting (GLUF)		
Glucose 30 Minutes (GLU30)		
Glucose 1 Hour (GLU1)		
Glucose 2 Hour (GLU2)		
Glucose 3 Hour (GLU3)		

<u>Test Name</u>	<u>OC (Keane) Mnemonic</u>	<u>Page</u>
<u>Hemogram:</u>		
Adults	HEMO	11
Neonates	HEMO	39
White Blood Cells (WBC)		
Red Blood Cells (RBC)		
Hemoglobin (HGB)		
Hematocrit (HCT)		
Mean Corpuscular Volume (MCV)		
Mean Corpuscular Hemoglobin (MCH)		
Mean Corpuscular Hemoglobin Concentration (MCHC)		
Red Cell Distribution Width (RDW)		
Platelet Count (PLT)		
Mean Platelet Volume (MPV)		
<u>Hepatitis Panel (Acute):</u>	HEPP	27
Hepatitis B Surface Antigen (HBSAG)		
Hepatitis C Antibody (HEPC)		
Hepatitis A IgM Antibody (HAIGM)		
Hepatitis B Core Antibody IgM (HBCM)		
<u>Hepatic Function Panel:</u>		
Adults	HFP	5
Neonates	HFP	45
Albumin (ALB)		
Alkaline Phosphatase (ALP)		
Aspartate Aminotransferase (AST a.k.a. SGOT)		
Alanine Aminotransferase (ALT a.k.a. SGPT)		
Bilirubin – Total (BILT)		
Bilirubin – Direct (BILD)		
Bilirubin – Indirect (BILI)		
Total Protein (TP)		
<u>Iron &amp; TIBC Panel:</u>	FETIB	5
Iron, Total (IRON)		
Total Iron Binding Capacity (TIBC)		
Iron Saturation (SAT%)		
<u>Lipid Panel:</u>	LIPID	5
Cholesterol (CHOL)		
Triglyceride (TRIG)		
High-Density Lipoprotein (HDL)		
Low-Density Lipoprotein, Calculated (LDL)		
Cholesterol / HDL Ratio (CHDR)		
<u>Lytes Panel:</u>	LYTES	5
Sodium (NA)		
Potassium (K)		
Chloride (CL)		
Carbon Dioxide (CO2)		
Anion Gap (ANION)		
<u>Neonatal Bilirubin Panel:</u>	NBILI	45
Bilirubin – Total (BILT)		
Bilirubin – Direct (BILD)		
Bilirubin – Indirect (BILI)		

<b><u>Test Name</u></b>	<b><u>OC (Keane) Mnemonic</u></b>	<b><u>Page</u></b>
<u>Obstetrics Panel:</u> Complete Blood Count (CBC) ABO and RH Type (BBTYPE) Blood Bank Antibody Screen (BBSCR) Hepatitis B Surface Antigen (HBSAG) Rapid Plasma Reagin Test (RPR) Rubella Antibody Screen (RUB)	O BSP	28
<u>Renal Panel:</u> Adults Neonates Basic Metabolic Panel (BMP) Albumin (ALB) Phosphorus (PHOS)	RENAL RENAL	5 45
<u>Thyroid Panel:</u> Thyroid Stimulating Hormone, Thyrotropin (TSH) T4, Free (Tetraiodotyrosine)(FRT4)	THYP	14
<u>Urinalysis:</u> Adults Neonates	UA UA	30 49
<u>Urine Adult Drug Screen Panel:</u> Barbiturate Screening (SBAR) Benzodiazepine Screening (SBNZ) Tricycle Screening, Antidepressants (STCA) Opiate Screening (SOPIAT) Cannabinoid Screening (SCANNA) Amphetamine Screening (SAMPH) Cocaine Screening (SCOC) Phencyclidine Screening (SPCP)	URTOX	30
<u>Urine Newborn Drug Screen Panel:</u> Barbiturate Screening (SBAR) Benzodiazepine Screening (SBNZ) Opiate Screening (SOPIAT) Cannabinoid Screening (SCANNA) Amphetamine Screening (SAMPH) Cocaine Screening (SCOC) Phencyclidine Screening (SPCP)	NDRUG	49
<u>Urine, 24 Hour Creatinine Clearance Panel:</u> Urine Creatinine Clearance, Calculated (UCC) Urine Creatinine (UCREA) Creatinine (CRE) Urine Creatinine Result, Calculated (U24CRE) Urine, 24 Hour, Total Volume (UTVOL)	UCRCL	32
<u>Urine, 24 Hour, Total Protein Panel:</u> Urine Total Protein (UPRO) Urine 24 Hour Total Protein (U24TP) Urine Total Volume (UTVOL)	UTP24	32

<b><u>Test Name</u></b>	<b><u>OC (Keane) Mnemonic</u></b>	<b><u>Page</u></b>
<u>Urine, 24 Hour, Urea Clearance Panel:</u> Urea Nitrogen (BUN) Urine, 24 Hour, Total Volume (UTVOL) Urine, 24 Hour, Blood, Urea and Nitrogen (U24BUN) Urine Urea Nitrogen (UUREA)	UREAP	32
<u>Urine, 24 Hour, Uric Acid Panel:</u> Urine, 24 Hour, Uric Acid (U24UA) Urine Uric Acid (UUA) Urine, 24 Hour, Total Volume (UTVOL)	UURIC	32

### **Individual Tests and Panels:**

ABO and RH Type	BBTYP	19
Acetaminophen	ACETA	1
Acetone (Ketones)		
Adults	ACET	5
Neonates	ACET	45
Activated Partial Thromboplastin Time		
Adults	APTT	4
Neonates	APTT	48
Alanine Aminotransferase (ALT a.k.a. SGPT)		
Adults	ALT	5
Neonates	ALT	45
Albumin, Blood		
Adults	ALB	5
Neonates	ALB	45
Albumin, Fluid		
Adults	FLALB	35
Neonates	FLALB	52
Alcohol (Ethyl), Blood	ETOH	9
Alkaline Phosphatase		
Adults	ALP	5
Neonates	ALP	45
$\alpha$ -Fetoprotein Tumor Marker – Non Maternal	AFP	14
Ammonia		
Adults	AMMO	5
Neonates	AMMO	45
Amylase, Blood		
Adults	AMY	5
Neonates	AMY	45
Amylase, Fluid		
Adults	FLAMY	35
Neonates	FLAMY	52
Amylase, Urine	UAMY	30

<b><u>Test Name</u></b>	<b><u>OC (Keane) Mnemonic</u></b>	<b><u>Page</u></b>
Antibody Identification (Definitive), Blood Bank	BBABI	19
Antibody Screen, Indirect Antiglobulin Test, Blood Bank	BBSCR	19
Antibody Titer, Blood Bank	Lab Use Only!	N/A
Anti Nuclear Antibodies, Screen	ANA	1
Anti Nuclear Antibodies, Screen, Quantitative	Lab Use Only!	1
Antistreptolysin O Screening	ASO	14
Arthritis Panel	ARTHP	23
Aspartate Aminotransferase (AST a.k.a. SGOT)		
Adults	AST	5
Neonates	AST	45
Basic Metabolic Panel		
Adults	BMP	5
Neonates	BMP	45
Beta-Human Chorionic Gonadotropin ( $\beta$ -hCG)		
Serum, Qualitative (Pregnancy Test)	HCGQL	14
Beta-Human Chorionic Gonadotropin ( $\beta$ -hCG)		
Serum, Quantitative (Pregnancy or Testicular Tumor)	HCGQT	14
Beta-Human Chorionic Gonadotropin ( $\beta$ -hCG)		
Urine Qualitative (Pregnancy Test)	HCGQL	30
Bilirubin, Direct – (Part of NBILI & Hepatic Function Panel)	Lab Use Only!	N/A
Bilirubin, Indirect – (Part of NBILI & Hepatic Function Panel)	Lab Use Only!	N/A
Bilirubin, Total	BILT	5
Bilirubin Panel, Neonatal	NBILI	45
Bleeding Time – Template	BLEED	37
Bone Marrow Aspirate – See Pathology	--	--
Bone Marrow Interpretation – See Pathology	--	--
Bone Marrow Smear (Stain) – See Pathology	--	--
Calcium, Blood		
Adults	CA	5
Neonates	CA	45
Calcium, Urine	UCAL	30
Carbamazepine (Tegretol)	CARB	1
Carbon Dioxide		
Adults	CO2	5
Neonates	CO2	45
Cardiac Panel		
Adults	CKMB	5
Neonates	CKMB	45
CD4 / CD8 Surface Receptors, T-cell Lymphocytes	TCELL	11
Cell Count, CSF		
Adults	CSFCT	34
Neonates	CSFCT	51

<b><u>Test Name</u></b>	<b><u>OC (Keane) Mnemonic</u></b>	<b><u>Page</u></b>
Cell Count, Fluid		
Adults	FLCCT	35
Neonates	FLCCT	52
Chloride, Blood		
Adults	CL	5
Neonates	CL	45
Chloride, Urine	URCL	30
Cholesterol, Blood		
Adults	CHOL	5
Neonates	CHOL	45
Cholesterol, Fluid		
Adults	CHOLF	35
Neonates	CHOLF	52
Cold Agglutinins	COLD	1
Complete Blood Count		
Adults	CBC	11
Neonates	CBC	39
Complete Blood Count, with Manual Differential		
Adults	CBCMD	11
Neonates	CBC	39
Comprehensive Metabolic Panel		
Adults	CMP	5
Neonates	CMP	45
Coombs' Test, Direct Antiglobulin Test, Blood Bank	BBDAT	19
Cord Blood Panel	CORD	24
C-Reactive Protein		
Adults	CRP	5
Neonates	CRP	45
Creatine Phosphokinase, Total		
Adults	CK	5
Neonates	CK	45
Creatinine, Blood		
Adults	CRE	5
Neonates	CRE	45
Creatinine, Urine	UCR	30
Creatinine Clearance, 24 Hour Urine Panel	UCRCL	32
Crossmatch Leukopoor, 1 Unit	BBLP	19
Crossmatch Packed Cells 1 Unit		
Adults	BBPC1	19
Neonates	BBPC1	41
Crossmatch Packed Cells 2 Unit	BBPC2	19
Crossmatch Packed Cells 3 Unit	BBPC3	19
Crossmatch Packed Cells 4 Unit	BBPC4	19

<b><u>Test Name</u></b>	<b><u>OC (Keane) Mnemonic</u></b>	<b><u>Page</u></b>
Cryoprecipitate, 5 Units	CRY5	19
Cryoprecipitate, 10 Units	CRY10	19
Crystals, Fluid		
Adults	FLCRY	35
Neonates	FLCRY	52
D-Dimer	DDIME	4
Depakene (Valproic Acid)	VALP	1
Digoxin	DIG	1
Dilantin (Phenytoin)		
Direct Antiglobulin Test, Coombs' Test, Blood Bank	BBDAT	19
Disseminated Intravascular Coagulopathy Panel	DIC	4
DNA Antibody, DS Native	DNAAB	14
Drug Screen Panel, Urine		
Adults	URTOX	30
Neonates	NDRUG	49
Electrolytes Panel, Blood – See Lytes Panel, Blood	--	--
Electrolytes, Urine – See Lytes, Urine	--	--
Eosinophil Smear (Ear, Nose, Throat or Urine)	EOS	37
Ethyl Alcohol, Blood	ETOH	9
Ferritin	FERR	14
Fibrinogen	FIB	4
Folate	FOLAT	14
Follicle Stimulating Hormone	FSH	14
Fresh Frozen Plasma, 1 Unit		
Adults	BBFF1	19
Neonates	BBFF1	41
Fresh Frozen Plasma, 2 Unit	BBFF2	19
Fresh Frozen Plasma, 3 Unit	BBFF3	19
Fresh Frozen Plasma, 4 Unit	BBFF4	19
Fresh Frozen Plasma, 5 Unit	BBFF5	19
Fresh Frozen Plasma, 6 Unit	BBFF6	19
Gamma Glutamyl Transpeptidase		
Adults	GGT	5
Neonates	GGT	45
General Health Panel	GHP	26
Gentamicin, Peak		
Adults	GENP	1
Neonates	GENP	43
Gentamicin, Random		
Adults	GENR	1
Neonates	GENR	43
Gentamicin, Trough		
Adults	GENT	1
Neonates	GENT	43

<b><u>Test Name</u></b>	<b><u>OC (Keane) Mnemonic</u></b>	<b><u>Page</u></b>
Glucose 1 Hour Postprandial	GLU1P	9
Glucose 2 Hour Postprandial	GLU2P	9
Glucose, Blood		
Adults	GLU	5
Neonates	GLU	45
Glucose, CSF		
Adults	CSFGLU	34
Neonates	CSFGLU	51
Glucose, Fluid		
Adults	FLGLU	35
Neonates	FLGLU	52
Glucose Tolerance Test Panel		
1 Hour	GTT1H	9
2 Hour	GTT2H	9
3 Hour	GTT3H	9
Glucose, Urine	UGLU	30
Glycosylated Hemoglobin	HA1C	11
Hematocrit		
Adults	HCT	11
Neonates	HCT	39
Hematocrit, Manual Method	<a href="#">Lab Use Only!</a>	--
Hemogram		
Adults	HEMO	11
Neonates	HEMO	39
Hepatic Function Panel		
Adults	HFP	5
Neonates	HFP	45
Hepatitis Panel (Acute)	HEPP	27
Hepatitis A Antibody IgG	HAIGG	14
Hepatitis A Antibody IgM	HAIGM	14
Hepatitis B <sub>c</sub> Antibody IgG	HBCG	14
Hepatitis B <sub>c</sub> Antibody IgM	HBCM	14
Hepatitis Anti HB <sub>e</sub> Follow Up	HBEAB	14
Hepatitis B <sub>e</sub> Antigen Follow Up	HBEAG	14
Hepatitis B <sub>s</sub> Antibody	HBSAB	14
Hepatitis B <sub>s</sub> Antigen	HBSAG	14
Hepatitis B <sub>s</sub> Antigen Confirmation	<a href="#">Lab Use Only!</a>	14
Hepatitis C Antibody	HEPC	12,14
Hepatitis C Antibody (RIBA)	<a href="#">Lab Use Only!</a>	14
Hepatitis C RNA by PCR, Qualitative	<a href="#">Lab Use Only!</a>	18
Hepatitis C RNA by PCR, Quantitative	HCVQN	18
HIV Antibody EIA	HIV	14
HIV Antibody IFA	<a href="#">Lab Use Only!</a>	14
HIV RNA by PCR, Quantitative	HIVN	18

<b><u>Test Name</u></b>	<b><u>OC (Keane) Mnemonic</u></b>	<b><u>Page</u></b>
Hold Clot for Possible Crossmatch	BBHC	19
Infectious Mononucleosis (Mono Screen)	MONO	14
Iron, Total	IRON	5
Iron & TIBC Panel	FETIB	5
Irradiation Charge, Blood Bank	Lab Use Only!	--
Ketones (Acetone)		
Adults	ACET	5
Neonates	ACET	45
Kleihauer Betke	KLEIH	11
Lactic Acid	LACT	9
Lactate, Fluid		
Adults	FLLAC	35
Neonates	FLLAC	52
Lactate Dehydrogenase (LDH), Blood		
Adults	LDH	5
Neonates	LDH	45
Lactate Dehydrogenase (LDH), CSF		
Adults	CSFLD	34
Neonates	CSFLD	51
Lactate Dehydrogenase (LDH), Fluid		
Adults	FLLDH	35
Neonates	FLLDH	52
Lead Level for Adults	LEAD	13
Lead Level for Children	LEADC	13
Lead Level for Neonates	LEADC	39
Lipase	LIP	5
Lipid Panel	LIPID	5
Lithium Level	LITH	14
Liver Function Panel – See Hepatic Function Panel	--	--
Lymphocyte (T-Cell), CD4 / CD8 Surface Receptor	TCELL	11
Lytes Panel	LYTES	5
Lytes, Urine (Sodium, Potassium and Chloride)	ULYTE	30
Magnesium, Blood		
Adults	MG	5
Neonates	MG	45
Magnesium, Urine	UMG	30
Malaria Smear	MALAR	11
Manual Differential	Lab Use Only!	--
Manual Differential, Complete Blood Count (CBC)		
Adults	CBCMD	11
Neonates	CBC	39
Measles, German (Rubella Antibody Screen)	RUB	14
Measles (Rubeola Antibody Screen)	RUBEO	14

<b><u>Test Name</u></b>	<b><u>OC (Keane) Mnemonic</u></b>	<b><u>Page</u></b>
Microalbumin, Urine, Random	MICUR	30
Microalbumin, Urine, 24 Hour	MIC24	32
Mono Screen (Infectious Mononucleosis)	MONO	14
Morphology Scan, RBC	SMEAR	11
Myoglobin, Blood	MYOGS	5
Myoglobin, Urine	MYOGU	30
Obstetrics Panel	OBSP	28
Occult Blood, Stool (1 Sample Day)	GUAC1	36
Occult Blood, Stool (3 Sample Days)	GUA13	36
Osmolality, Serum	OSMO	14
Osmolality, Urine	USOMO	30
pH, Fluid		
Adults	FLPH	35
Neonates	FLPH	52
Pathology:		
Gross Pathology	PATH	57
Body Fluids (Cytology)	CYTFL	59
Fine Needle Aspirates, FNA (Cytology)	CYTFL	59
Bone Marrow Studies:		
Bone Marrow Biopsy (Interpretation)	BMI	60
Bone Marrow Aspirate	BONEM	60
Bone Marrow Smear	BONES	60
Complete Blood Count (Required)	CBC	60
Pap Smear, (Cytology)	Manual Form	62
Phenobarbital	PHB	1
Phenytoin (Dilantin)	PHENY	1
Phosphorus, Blood		
Adults	PHOS	5
Neonates	PHOS	45
Phosphorus, Urine	UPO4	30
Phenylketonuria (Phenylalanine Hydroxylase Screen)	PKU	50
Platelet Concentrate 1 Unit		
Adults	BBP1	19
Neonates	BBP1	41
Platelet Concentrate 5 Unit	BBP5	19
Platelet Concentrate 10 Unit	BBP10	19
Plateletpheresis, Blood Bank	<a href="#">Lab Use Only!</a>	19
Point of Care Testing:		
Glucose test by Glucometer	--	53
Urinalysis by 10UA Dipstick	--	54
Fecal Occult Blood by SERACULT Test Card	--	55
Pregnancy test by urine hCG pregnancy test kit	--	56

<b><u>Test Name</u></b>	<b><u>OC (Keane) Mnemonic</u></b>	<b><u>Page</u></b>
Potassium, Blood		
Adults	K	5
Neonates	K	45
Potassium, Urine	URK	30
Pregnancy Test – See Beta-Human Chorionic Gonadotropin	--	--
Prolactin	PROL	14
Prostatic Specific Antigen	PSA	14
Protein, Total, Blood		
Adults	TP	5
Neonates	TP	45
Protein, Total, CSF		
Adults	CSFPR	34
Neonates	CSFPR	51
Protein, Total, Fluid		
Adults	FLPRO	35
Neonates	FLPRO	52
Protein, Total, 24 Hour Urine Panel	UTP24	32
Protein, Urine	UPRO	30
Prothrombin Time w/ INR (International Normalized Ratio)		
Adults	PT	4
Neonates	PT	48
Rapid Plasma Reagin Test	RPR	14
Rapid Plasma Reagin Test Titer	<a href="#">Lab Use Only!</a>	14
Rapid Plasma Reagin Test – Particle Agglutination	<a href="#">Lab Use Only!</a>	14
Reducing Substances, Urine	URED	30
Renal Panel		
Adults	RENAL	5
Neonates	RENAL	45
Reticulocyte Count		
Adults	RETIC	11
Neonates	RETIC	39
Rheumatoid Factor	RF	1
Rhogam, Rh <sub>o</sub> (D) Immune Globulin (Human)	RHO	38
Rubella Antibody Screen (German Measles)	RUB	14
Rubeola Antibody Screen (Measles)	RUBEO	14
Salicylates	SAL	1
Sedimentation Rate	ESR	11
Sickle Cell Screen		
Adults	SICKL	11
Neonates	SICKL	39
Sodium, Blood		
Adults	NA	5
Neonates	NA	45
Sodium, Urine	UNA	30

<b><u>Test Name</u></b>	<b><u>OC (Keane) Mnemonic</u></b>	<b><u>Page</u></b>
Specific Gravity, Fluid		
Adults	FLSG	35
Neonates	FLSG	52
T3, Free (Triiodotyrosine)	T3F	14
T3, Uptake (Triiodotyrosine)	T3U	14
T4, Free (Tetraiodotyrosine)	T4F	14
T4, Total (Tetraiodotyrosine)	T4	14
T Cell (Lymphocytes), CD4 / CD8 Surface Receptors	TCELL	11
Tegretol (Carbamazepine)	CARB	1
Theophylline		
Adults	THEO	1
Neonates	THEO	43
Thrombin Time	THROM	43
Thyroid Panel	THYP	14
Thyroid Stimulating Hormone, Thyrotropin	TSH	14
Tobramycin, Peak		
Adults	TOBP	1
Neonates	TOBP	43
Tobramycin, Random		
Adults	TOBR	1
Neonates	TOBR	43
Tobramycin, Trough		
Adults	TOBT	1
Neonates	TOBT	43
<i>Toxoplasma gondii</i> Titer	TOXTI	14
Triglycerides		
Adults	TRIG	5
Neonates	TRIG	45
Troponin I, Quantitative	TROP	5
Type, Screen and Hold	BBTSH	19
Urea Clearance, 24 Hour Urine Panel	UREAP	32
Urea Nitrogen, Blood		
Adults	BUN	5
Neonates	BUN	45
Urea Nitrogen, Urine	UUREA	30
Uric Acid, Blood		
Adults	URIC	5
Neonates	URIC	45
Uric Acid, Urine	UUA	30
Uric Acid, 24 Hour Urine Panel	UURIC	32
Urinalysis		
Adults	UA	30
Neonates	UA	49
Urinalysis Dipstick	URDIP	30

<b><u>Test Name</u></b>	<b><u>OC (Keane) Mnemonic</u></b>	<b><u>Page</u></b>
Valproic Acid (Depakene)	VALP	1
Vancomycin, Peak		
Adults	VANCP	1
Neonates	VANCP	43
Vancomycin, Trough		
Adults	VANCT	1
Neonates	VANCT	43
Varicella Antibody Screen	VARIC	14
VDRL, Blood, See Rapid Plasma Reagin Test (RPR)	--	--
VDRL, Qualitative, CSF		
Adults	CSFVD	34
Neonates	CSFVD	51
VDRL, Quantitative, CSF (VDRLQ)		
Adults	<a href="#">Lab Use Only!</a>	34
Neonates	<a href="#">Lab Use Only!</a>	51
Vitamin B12	VTB12	1
Washed Packed Cell, 1 Unit	BBWC1	19

**This guide is not conclusive. If a particular test is desired and is not included in this guide, please refer to the “Send Outs to Reference Laboratory” section (p.64) or call one of the following departments for specimen selection, collection and management requirements:**

- |  |                       |
|--|-----------------------|
| <b>1) Laboratory Send Outs</b>           | <b>(209) 468-6961</b> |
| <b>2) Laboratory Specimen Processing</b> | <b>(209) 468-7059</b> |

**If there are any suggestions or problems please feel free to call our message hotline at 468-6068.**



**BD Vacutainer Plain Sterile Red Top 10 mL Glass Tube  
(No additives)**

Test Name	Tube/ Min volume	Transport Time (Max)	Transport temp (°C)	Comments
<b>Individual Tests:</b>				
Anti Nuclear Antibodies, Screen (ANA)	Red Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Test commonly includes titers and pattern of nuclear fluorescence on positive patients. (1)
Anti Nuclear Antibodies, Screen, Quantitative (ANAQN)	Gold Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Test gives titer and pattern of nuclear fluorescence on positive patients. (1)
Cold Agglutinins (COLD)	Red Top 10 mL	ASAP ≤ 2 hours	37 °C	<b>DO NOT REFRIGERATE SPECIMEN. Maintain at 37 °C throughout transport.</b> (1)
Follicle Stimulating Hormone (FSH)	Red Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge and freeze serum; avoid hemolysis. (1)
Prolactin (PROL)	Red Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge within 2 hours. (1)
Rheumatoid Factor (RF)	Gold Top 5.0 mL	ASAP ≤ 2 hours	25 °C	

Theophylline (**THEO**)

RED TOP

10 mL

ASAP  $\leq$  2 hours

25 °C

Measure trough & peak levels. If toxicity is suspected, draw a level any time during continuous I.V. infusion, or 2 hours after an oral dose. Refrigerate (do not freeze) a minimum of 0.5 mL serum. Causes for rejection include: specimen not refrigerated. (1)



**BD Vacutainer Lt. Blue 4.5 mL Glass Tube  
Buffered Citrate Sodium 0.105M (3.2%)**

Test Name	Tubes/ volume	Transport time (Max)	Transport temp (°C)	Comments
<b>Panels:</b>				
Disseminated Intravascular Coagulopathy Panel (DIC)	Lt Blue Top 4 mL	ASAP ≤ 1 hour	25 °C	Causes for rejection include: hemolyzed specimen, tube not full, specimen received 4 hours after collection, specimen clotted. (1)
<b>Individual Tests:</b>				
Activated Partial Thromboplastin Time (APTT)	Lt Blue Top 4 mL	ASAP ≤ 1 hour	25 °C	Causes for rejection include: hemolyzed specimen, tube not full, specimen received 4 hours after collection, specimen clotted. (1)
D-Dimer (DDIMER)	Lt Blue Top 4 mL	ASAP ≤ 1 hour	25 °C	Specimen should be tested immediately. Causes of rejection include: specimen received 4 hours after collection, specimen clotted. (1)
Fibrinogen (FIB)	Lt Blue Top 4 mL	ASAP ≤ 1 hour	25 °C	Causes for rejection include: hemolyzed specimen, tube not full. (1)
Prothrombin Time w/INR - International Normalized Ratio (PT)	Lt Blue Top 4 mL	ASAP ≤ 1 hour	25 °C	Causes for rejection include: hemolyzed specimen, lipemic, or icteric (possible interference with photo-optical clot detection), tube not full, specimen received 24 hour after collection, specimen clotted. (1)
Thrombin Time (THROMB)	Lt Blue Top 4 mL	ASAP ≤ 1 hour	25 °C	Causes for rejection include: hemolyzed specimen, tube not full, specimen clotted. <b>Test is a send out to a reference laboratory.</b> (1)



**BD Vacutainer Lt. Green Top 4.0 mL Glass Tube  
Plasma Separation Tube (PST) – Gel & Lithium Heparin**

<b>Test Name</b>	<b>Tubes/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
<b>Panels:</b>				
Basic Metabolic Panel (BMP)	Li. Heparin Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	
Cardiac Panel (Creatine Phosphokinase)(CKMBP)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	
Comprehensive Metabolic Panel (CMP)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	
Hepatic Function Panel (HFP)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Protect bilirubin specimen from light. Avoid hemolysis. (1)
Iron & TIBC Panel (FETIBC)	Green Top  5.0 mL	ASAP ≤ 2 hours	25 °C	Iron levels are 30% higher in the morning, blood levels should be determined on fasting AM samples. Centrifuge and freeze if not assayed immediately. (1)
Lipid Panel (LIPID)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Patient should be fasting for at least 10 hours before collection of specimen. (1)
Lytes Panel (LYTES)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Collect serum or plasma specimens. Do not freeze. (1)
Renal Panel (RENAL)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	

**Individual Test:**

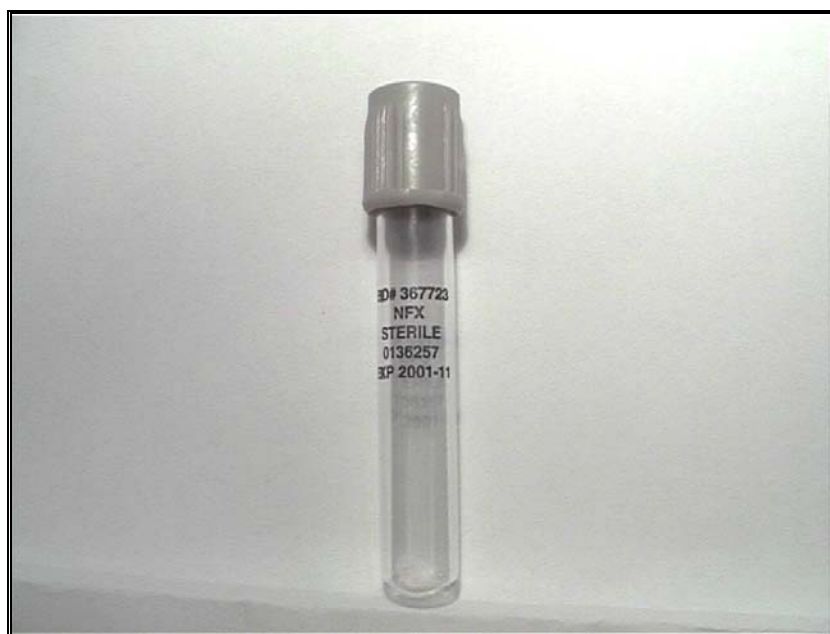
<b>Test Name</b>	<b>Tubes / volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Acetone (Ketones)(KET)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Causes for rejection include: hemolysis. (1)
Acetaminophen (ACETA)	Green Top 5.0 ml	ASAP ≤ 2 hours	25 °C	
Alanine Aminotransferase (ALT a.k.a. SGPT)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Causes for rejection include: excessive hemolysis. (1)
Albumin (ALB)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	
Alkaline Phosphatase (ALP)	Green Top  5.0 mL	ASAP ≤ 2 hours	25 °C	Patient should be fasting. Refrigerate specimen. Increases of 5-10% can be expected after less than 4 hours storage at 4 °C. Best to analyze specimen on same day of collection. (1)
Ammonia (AMMO)	Green Top  5.0 mL	<b>ASAP ≤ 20 minutes</b>	<b>4 °C</b>	<b>Specimen should be transported to the laboratory on ICE and test should be performed within 20 minutes of collection.</b> Avoid hemolysis of specimen which increases plasma ammonia. (1)
Amylase, Blood (AMY)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Anticoagulants other than heparin diminish amylase activity. (1)
Aspartate Aminotransferase (AST a.k.a. SGOT)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Avoid hemolysis. (1)
Beta-Human Chorionic Gonadotropin (β-hCG) Plasma , Quantitative (HCGQL)	Green Top  5.0 mL	ASAP ≤ 2 hours	25 °C	State date of last menstrual period and length of gestation for prenatal screening. Nonmaternal hCG can be ordered when monitoring for testicular tumors. The nonmaternal hCG is a send out to a reference laboratory. (1)
Beta-Human Chorionic Gonadotropin (β-hCG) Plasma, Quantitative (HCGQT)	Green Top  5.0 mL	ASAP ≤ 2 hours	25 °C	State date of last menstrual period and length of gestation for prenatal screening. Nonmaternal hCG can be ordered when monitoring for testicular tumors. The nonmaternal hCG is a send out to a reference laboratory. (1)
Bilirubin, Direct (BILD)	Green Top  5.0 mL	ASAP ≤ 1 hour	25 °C	<b>Store in refrigerator and protect from exposure to light.</b> Causes for rejection include: Gross hemolysis and specimen not protected from light. (1)

Test Name	Tubes / volume	Transport time (Max)	Transport temp (°C)	Comments
Bilirubin, Indirect (BILI)	N/A	N/A	N/A	Indirect Bilirubin is a calculated value included in Neonatal Bilirubin and Hepatic Function Panels.
Bilirubin, Total (BILT)	Green Top 5.0 mL	ASAP ≤ 1 hour	25 °C	<b>Store in refrigerator and protect from exposure to light.</b> Causes for rejection include: Gross hemolysis and specimen not protected from light. (1)
Calcium (CA)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Morning fasting sample desired. Refrigerate specimen and avoid hemolysis. (1)
Carbamazepine ( <b>CARB</b> ) (a.k.a. Tegretol)	Green Top 5 mL	ASAP ≤ 2 hours	25 °C	A consistent sample time, ideally a trough level, should be used to monitor patients on chronic therapy. (1)
Carbon Dioxide (CO2)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Specimen should be kept tightly closed, as CO <sub>2</sub> will diffuse out, causing erroneous values. (1)
Chloride (CL)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Store in refrigerator. (1)
Cholesterol, Blood (CHOL)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	For optimum patient condition at time of drawing: no change in diet for 3 weeks, stable body weight, and fasting for 12 hours prior to collection. (1)
C-Reactive Protein (CRP)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Do not freeze specimen. (1)
Creatine Phosphokinase, Total (CK)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge and separate serum from red cells. Store at 4 °C and avoid hemolysis. (1)
Creatinine (CRE)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Fasting specimen desirable, avoid hemolysis. (1)
Digoxin ( <b>DIG</b> )	Green Top 5 mL	ASAP ≤ 2 hours	25 °C	Make sure patient is not on Digitoxin. The two drugs have a cross reactivity. Specimen must be drawn at least 6 hours after the administration of last dose; additionally, just before next dose if steady-state estimate is needed. The steady-state is usually attained in 5 days. Causes for rejection include: patient on a cardiac glycoside other than Digoxin, recently administered radio-isotopes if RIA assay is used. (1)
Ethyl Alcohol, Blood (ETOH)	Green Top 5.0 mL	<b>ASAP ≤ 30 minutes</b>	25 °C	Do not cleanse venipuncture site with alcohol, use instead a betadine solution. Avoid exposing specimen to air. Refrigerate specimen. (1)

Test Name	Tubes / volume	Transport time (Max)	Transport temp (°C)	Comments
Ferritin (FERR)	5.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge and refrigerate specimen. (1)
Folate (FOLATE)	5.0 mL	ASAP ≤ 2 hours	25 °C	Fasting specimen is desirable. Centrifuge and freeze serum. <b>Protect specimen from light.</b> Causes for rejection include: hemolyzed specimen, stored specimen not frozen or protected from light, patient having had isotope scan or Schilling's test prior to collection of specimen. (1)
Free T4 (FRT4)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge within 2 hours. (1)
Gamma Glutamyl Transpeptidase (GGT)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Fasting specimen desired. Since elevations may occur with phenytoin or phenobarbital therapy, alternate tests, such as leucine aminopeptidase (LAP) or 5' nucleotidase, may be preferred in such patients. (1)
Gentamicin, Peak ( <b>GENP</b> )	Green Top  5 mL	ASAP ≤ 1 hour	25 °C	Peak sampling time of 30-60 minutes after end of 30-minute I.V. infusion or 60 minute post I.M. dose. <b>Centrifuge and separate within 1 hour of collection and refrigerate or freeze until assayed.</b> (1)
Gentamicin, Random ( <b>GENR</b> )	Green Top  5 mL	ASAP ≤ 1 hour	25 °C	<b>Centrifuge and separate within 1 hour of collection and refrigerate or freeze until assayed.</b> (1)
Gentamicin, Trough ( <b>GENT</b> )	Green Top  5 mL	ASAP ≤ 1 hour	25 °C	Trough sampling time immediately prior to next dose. <b>Centrifuge and separate within 1 hour of collection and refrigerate or freeze until assayed.</b> (1)
Glucose (GLU)	Green Top  5.0 mL	<b>ASAP ≤ 30 minutes</b>	25 °C	<b>Specimen should be centrifuged ASAP.</b> Glucose will decrease 5-10 mg/dl per hour in un-separated, room temperature blood not collected with sodium fluoride. Indicate whether the patient has been fasting for 8 hours or not fasting. (1)
Iron, Total (IRON)	Green Top  5.0 mL	ASAP ≤ 2 hours	25 °C	Iron levels are 30% higher in the morning and blood levels should be determined on fasting AM samples. Centrifuge and freeze if not assayed immediately. (1)

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
Ketones (Acetone)(KET)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Causes for rejection include: hemolysis. (1)
Lactate Dehydrogenase (LDH)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Causes for rejection include: hemolysis. (1)
Lipase (LIP)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	
Magnesium (MG)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	<b>Specimen should be centrifuged ASAP.</b> Causes for rejection include: hemolysis. (1)
Myoglobin (MYOG)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	
Phenobarbital ( <b>PHB</b> )	Green Top 5 mL	ASAP ≤ 2 hours	25 °C	Constant sampling time is desirable but less important than for other anticonvulsant, due to its long half-life. (1)
Phenytoin, Dilantin ( <b>PHNY</b> )	Green Top 5 mL	ASAP ≤ 2 hours	25 °C	In monitoring patients maintained on chronic therapy, a trough level or consistent sampling time should be used. (1)
Phosphorus (PHOS)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Fasting specimen desirable. Phosphorus levels are lower following meals. <b>Specimen should be centrifuged ASAP to false elevations.</b> Avoid overheating. Causes for rejection include: hemolysis. (1)
Potassium (K)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	<b>Specimen should be centrifuged ASAP.</b> Storage of unspun blood at 4 °C causes serum & plasma K+ to increase. Causes for rejection include: hemolysis. (1)
Protein, Total (TP)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	<b>Specimen should be centrifuged ASAP.</b> (1)
Salicylates ( <b>SAL</b> )	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Sampling time for peak serum concentration is about 1-2 hours. Optimal sampling time after dosage is 4-6 hours. (1)
Sodium (NA)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Avoid use of Sodium Heparin tubes. (1)
Thyroid Stimulating Hormone (TSH)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge and refrigerate serum. (1)
Tobramycin, Peak ( <b>TOBP</b> )	Green Top 5 mL	ASAP ≤ 1 hours	25 °C	Collect 30-60 minutes after end of 30 minute I.V. infusion or 60 minutes post I.M. dose. <b>Centrifuge and separate within 1 hour of collection and refrigerate or freeze until assayed.</b> (1)

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
Tobramycin, Random (TOBR)	Green Top 5 mL	ASAP ≤ 1 hour	25 °C	<b>Centrifuge and separate within 1 hour of collection and refrigerate or freeze until assayed.</b> (1)
Tobramycin, Trough (TOBT)	Green Top 5 mL	ASAP ≤ 1 hour	25 °C	Collect immediately prior to next dose. <b>Centrifuge and separate within 1 hour of collection and refrigerate or freeze until assayed.</b> (1)
Triglycerides (TRIG)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Patient should be fasting for 12-14 hours. Causes for rejection include: collection in glycerinated tube, nonfasting specimen. (1)
Troponin I, Quantitative (TROP)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Serial sampling, tracking sequential increases and decreases in analyte concentration is optimal for troponin as it is for CK, CK-MB, LDH and LDH isoenzymes to document or rule out AMI. Causes of rejection include: hemolysis. (1)
Urea Nitrogen, Blood (BUN)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	
Uric Acid, Blood (URIC)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Fasting specimen desirable. Uric acid concentration is usually higher in the morning and lower in the evening. <b>Specimen should be centrifuged ASAP.</b> (1)
Valproic Acid, Depakene (VALP)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Trough values drawn just before next dose or consistent sampling time in chronic monitoring. (1)
Vancomycin, Peak (VANCO)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Collect sample at 2 hours after dose. Centrifuge specimen and freeze until assayed. Reject specimen if more than 2 hours old. (1)
Vancomycin, Trough (VANCOT)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Collect immediately prior to next dose. Centrifuge specimen and freeze until assayed. Reject specimen if more than 2 hours old. (1)
Vitamin B12 (VITB12)	Green Top 5.0 mL	ASAP ≤ 2 hours	25 °C	A fasting specimen is preferred. Draw before transfusion or Vit B <sub>12</sub> therapy is started. <b>Separate Serum/ plasma and freeze ; protect from light.</b> (1)



**BD Vacutainer Lt. Gray Top 5.0 mL Glass Tube  
NFX - Potassium Oxalate/Sodium Fluoride**

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
<b>Panels:</b>				
Glucose Tolerance Test, 1 Hour (GTT1HR)	Gray Top  5.0 mL	ASAP ≤ 2 hours	25 °C	<p>Patient should be fasting. Avoid tobacco products due to glucose stimulation by nicotine.</p> <p>A fasting specimen is collected, if fasting glucose is &gt;110 mg/dl, obtain ordering physicians approval before proceeding with glucose load, a measured glucose load is given, and 2<sup>nd</sup> specimen is collected 1 hour after glucose load. (1)</p> <p>Causes for rejection include: time not marked on tubes, patient not fasting, stressed patient (following surgery, or with infection, or on corticosteroids). (1)</p>
Glucose Tolerance Test, 2 Hours (GTT2HR)	Gray Top  5.0 mL	ASAP ≤ 2 hours	25 °C	<p>Patient should be fasting. Avoid tobacco products due to glucose stimulation by nicotine.</p> <p>A fasting specimen is collected, if fasting glucose is &gt;110 mg/dl, obtain ordering physicians approval before proceeding with glucose load, a measured glucose load is given, a 2<sup>nd</sup> specimen is collected 1 hour after glucose load, then a 3<sup>rd</sup> specimen is collected 2 hours after glucose load. (1)</p> <p>Causes for rejection include: time not marked on tubes, patient not fasting, stressed patient (following surgery, or with infection, or on corticosteroids). (1)</p>

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
Glucose Tolerance Test, 3 Hours (GTT3HR)	Gray Top  5.0 mL	ASAP ≤ 2 hours	25 °C	<p>Patient should be fasting. Avoid tobacco products due to glucose stimulation by nicotine.</p> <p>A fasting specimen is collected, if fasting glucose is &gt;110 mg/dl, obtain ordering physicians approval before proceeding with glucose load, a measured glucose load is given, a 2nd specimen is collected 1 hour after glucose load, a 3<sup>rd</sup> specimen is collected 2 hours after glucose load, then a 4<sup>th</sup> specimen is collected 3 hours after glucose load. (1)</p> <p>Causes for rejection include: time not marked on tubes, patient not fasting, stressed patient (following surgery, or with infection, or on corticosteroids). (1)</p>
<b>Individual Tests:</b>				
Glucose, 1 Hour Postprandial (GLU1PP)	Gray Top  5.0 mL	ASAP ≤ 2 hours	25 °C	<p><b>For gestational patients, fasting not required,</b> patient has meal, specimen is collected 1 hour after consumption of meal.</p> <p><b>For non-gestational patients, fasting is required,</b> patient has meal, specimen is collected 1 hour after consumption of meal. (1)</p>
Glucose, 2 Hour Postprandial (GLU2PP)	Gray Top  5.0 mL	ASAP ≤ 2 hours	25 °C	<p><b>For gestational patients, fasting not required,</b> patient has meal, specimen is collected 2 hour after consumption of meal.</p> <p><b>For non-gestational patients, fasting is required,</b> patient has meal, specimen is collected 2 hour after consumption of meal. (1)</p>
Lactic Acid (LACT)	Gray Top  5.0 mL	ASAP ≤ 15 minutes	4 °C	<p><b>Specimen should be transported to the laboratory on ice and test should be performed within 15 minutes of collection.</b></p> <p>Avoid hand-clenching, and if possible the use of a tourniquet. The use of either will lead to build-up of potassium and lactic acid from the hand muscle. (1)</p>



**BD Vacutainer Lavender Top 4.0 mL Plastic Tube  
7.2 mg K<sub>2</sub> EDTA**

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
<b>Panels:</b>				
Complete Blood Count (CBC)	Lavender Top  5.0 mL	ASAP ≤ 2 hours	25 °C	Mix specimen 10 times by gentle inversion. <b>This test includes an automated differential.</b> Causes for rejection include: wrong tube, clotted specimen, hemolyzed specimen, or dilution of blood with I.V. fluid. (1)
Complete Blood Count (MDIFF)	Lavender Top  5.0 mL	ASAP ≤ 2 hours	25 °C	Mix specimen 10 times by gentle inversion. <b>This test includes a manual differential.</b> Causes for rejection include: wrong tube, clotted specimen, hemolyzed specimen, or dilution of blood with I.V. fluid. (1)
Hemogram (HEMO)	Lavender Top  5.0 mL	ASAP ≤ 2 hours	25 °C	Mix specimen 10 times by gentle inversion. Causes for rejection include: wrong tube, clotted specimen, hemolyzed specimen, or dilution of blood with I.V fluid. (1)

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
<b>Individual Tests:</b>				
Glycosylated Hemoglobin (A1C)	Lavender Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Fasting specimen not required. Testing at 3-4 month intervals is suggested for patients with type I diabetes. For patients with type II diabetes, glycated hemoglobin at diagnosis and at 6 month intervals are recommended. (1)
Hematocrit (HCT)	Lavender Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Causes for rejection include: clotted or hemolyzed specimen. (1)
Hematocrit, Manual Method (HCTM)	Lavender Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Causes for rejection include: clotted or hemolyzed specimen. (1)
Hepatitis C Antibody (HEPC)	Lavender Top/ & Gold Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Collect 1 lavender top and 1 gold top tube. Centrifuge both tubes, separate serum from lavender top and freeze. Refrigerate gold top tube. (1)
Kleihauer Betke (KLEIH)	Lavender Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Causes for rejection include: clotted specimen, improper labeling, inadequate specimen, gross hemolysis. (1)
Lymphocyte T-cell CD4 / CD8 Surface Receptors (FLOWP)	Lavender Top 4.0 mL	ASAP ≤ 2 hours	25 °C	<b>Do not refrigerate specimen. (1)</b>
Malaria Smear (MALARI)	Lavender Top 4.0 mL	ASAP ≤ 2 hours	25 °C	Specimen should be collected immediately before anticipated fever spike. (1)
Morphology Scan, RBC (SCAN)	Lavender Top 4.0 mL	ASAP ≤ 2 hours	25 °C	Causes for rejection include: clotted or hemolyzed specimen. (1)
Reticulocyte Count (RETIC)	Lavender Top 4.0 mL	ASAP ≤ 2 hours	25 °C	Causes for rejection include: clotted or hemolyzed specimen. (1)
Sedimentation Rate (ESR)	Lavender Top 4.0 mL	ASAP ≤ 2 hours	25 °C	Specimen must be received with-  in 2 hours of collection. Causes for rejection include: insufficient blood, clotted, hemolyzed specimen. (1)
Sickle Cell Screen (SICKLE)	Lavender Top 4.0 mL	ASAP ≤ 2 hours	25 °C	Causes for rejection include: clotted or hemolyzed specimen. (1)

# Lead Level



**BD Vacutainer Lavender Top 4.0 mL Plastic Tube  
7.2 mg K<sub>2</sub> EDTA**

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
Lead Level (LEAD)	Lavender Top  5.0 mL	ASAP ≤ 2 hours	4 °C	<b>Specimen should be refrigerated.</b> Do not separate cells, prevent clotting, direct exposure to sunlight, and elevated temperatures. Causes for rejection include: wrong tube specimen not refrigerated, clotted specimen. Other acceptable collection tubes include: Na <sub>2</sub> EDTA or Sodium Heparin tubes. See “ <b>Note</b> ” (1, 2)
Lead, Children (LEADC)	Lavender Top  5.0 mL	ASAP ≤ 2 hours	4 °C	<b>Specimen should be refrigerated.</b> Do not separate cells, prevent clotting, direct exposure to sunlight, and elevated temperatures. Causes for rejection include: wrong tube, specimen not refrigerated, clotted specimen. Other acceptable collection tubes include: Na <sub>2</sub> EDTA or Sodium Heparin tubes. See “ <b>Note</b> ” (1, 2)

**Note:** Caution must be observed when K<sub>2</sub>EDTA or Na<sub>2</sub>EDTA tubes are used, since low blood lead levels can be obtained with poorly filled blood sampling tubes. When using EDTA as an anticoagulant, use less than or equal to 1.8 mg EDTA / mL of blood. **It is recommended that K<sub>2</sub>EDTA, Na<sub>2</sub>EDTA or Sodium Heparin tubes be at least ½ full.**



**BD Vacutainer Gold Top 5.0 mL Plastic Tube  
Serum Separation Tube (SST) – Gel & Clot Activator**

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
<b>Individual Tests:</b>				
Alpha-Fetoprotein Tumor Marker – Non Maternal (AFP)	Gold Top  5.0 mL	ASAP ≤ 30 minutes	25 °C	<b>Specimen should be centri- fuged and frozen within 30 minutes of collection.</b> Test performed on Tuesdays and Fridays. (1)
Antistreptolysin O Screening (ASO)	Gold Top  5.0 mL	ASAP ≤ 2 hours	25 °C	
DNA Antibody, Double Stranded Native (DNAAB)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate specimen. (1)
Hepatitis A Antibody (HAIGG)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and freeze serum. IgG (1)
Hepatitis A Antibody (HAIGM)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and freeze serum. IgM (1)
Hepatitis Bc Antibody IgG (HBCG)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate serum. (1)

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (oC)</b>	<b>Comments</b>
Hepatitis Bc Antibody IgM (HBCM)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate serum. (1)
Hepatitis Anti HBe Follow Up (HBEAB)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate serum. (1)
Hepatitis Be Antigen Follow Up (HBEAG)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate or freeze serum. (1)
Hepatitis Bs Antibody (HBSAB)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate serum. (1)
Hepatitis Bs Antigen (HBSAG)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate serum. (1)
Hepatitis Bs Antigen Confirmation (HBSAG)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate serum. (1)
Hepatitis C Antibody (HEPC)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Collect 1 lavender top and 1 gold top tube. Centrifuge both tubes, separate serum from lavender top and freeze. Refrigerate gold top tube. (1)
Hepatitis C Antibody, RIBA(HCVAB)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate serum. (1)
HIV Antibody EIA (HIV)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Blood and body fluid precautions must be observed. (1)
HIV Antibody IFA (HIVIFA)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Blood and body fluid precautions must be observed. (1)
Lithium Level (LITH)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Draw sample 12 hours after last dose. Centrifuge and refrigerate specimen. (1)
Mono Screen, Infectious Mononucleosis (MONO)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	
Osmolality, Serum (OSMO)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate if test is not performed in 4 hours. (1)
Prostatic Specific Antigen (PSA)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Fasting specimen desirable. (1) Centrifuge and freeze serum.
Rapid Plasma Reagin Test (RPR)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate serum.
Rapid Plasma Reagin Test Titer (RPRT)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate serum.
Rapid Plasma Reagin Test - Particle Agglutination (TP-PA)	5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate serum.

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (oC)</b>	<b>Comments</b>
Rubella Antibody Screen, German Measles (RUB)	Gold Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge and refrigerate serum. (2)
Rubeola Antibody Screen, Measles (RUBEO)	Gold Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge and refrigerate serum. (2)
T3, Free (T3F)	Gold Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge within 2 hours. (1)
T3, Uptake (T3U)	Gold Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge within 2 hours. (1)
T4, Total (T4)	Gold Top 5.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge within 2 hours. (1)
Toxoplasma gondii, Titer (TOXTI)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Acute and convalescent serum specimens are recommended at three week intervals. (1)
Varicella Antibody Screen (VARICE)	5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate serum. Acute and convalescent sera collected 10-14 days apart are recommended. A single specimen is satisfactory to establish immune status. (1)



**BD Vacutainer White Top 5.0 mL Plastic Tube  
Plasma Preparation Tube (PPT) - K<sub>2</sub> EDTA**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
<b>Individual Tests:</b>				
HIV RNA by PCR, Quantitative (HIVRNA)	5.0 mL	ASAP ≤ 1 hour	25 °C	Please collect two tubes (recommended), although one <b>full</b> tube is acceptable. <b>Specimen should be centrifuged and frozen within 1 hour of collection. (1)</b>
Hepatitis C RNA by PCR, Qualitative (HCVRN)	5.0 mL	ASAP ≤ 1 hour	25 °C	Please collect two tubes (recommended), although one <b>full</b> tube is acceptable. <b>Specimen should be centrifuged and frozen within 1 hour of collection. (1)</b>
Hepatitis C RNA by PCR, Quantitative (HCVQN)	5.0 mL	ASAP ≤ 1 hour	25 °C	Please collect two tubes (recommended), although one <b>full</b> tube is acceptable. <b>Specimen should be centrifuged and frozen within 1 hour of collection. (1)</b>



**Greiner Vacuette Lavender Top 9.0 mL Plastic Tube  
1.8 mg K<sub>3</sub> EDTA**

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
<b>Individual Tests:</b>				
ABO and RH Type (BBTYPE)	Lavender 9  9.0 mL	ASAP / STAT	25 oC	<p>Patient must have a wristband or other positive written identification on the body. This must be physically attached to the body, not on the wall or the bed or clipped to the chart.</p> <p>At the patient's side, ask the patient to give his/her name. Compare with the hospital wristband. Label the Blood Bank wristband with the patient's full name, medical record number, date, time and initials of the collector. Label specimen tube with the Blood Bank Identification label from the wristband. Label requisition, verify the patient's identity with hospital wristband and Blood Bank wristband. It's always best to stamp the requisition with the patient's identification plate to avoid transcription errors. Take extra care with identification of unresponsive patients.</p> <p>Causes for rejection include: specimen tube not properly labeled, gross hemolysis, sample placed in serum separator tube. (1)</p>

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Type, Screen and Hold (BBTSH)	Lavender 9 9.0 mL	ASAP / STAT	25 oC	See ABO and RH Type above With "Type, Screen and Hold", units of blood are not available unless a crossmatch is ordered. "Hold" refers to the specimen tube, which is held for 72 hours for possible future crossmatch.
Antibody Screen (BBSCR)	Lavender 9 9.0 mL	ASAP / STAT	25 oC	a.k.a. Indirect Antiglobulin Test. Causes for rejection include: specimen tube not properly labeled, gross hemolysis. (1)
Antibody Identification Definitive (BBABID)	Lavender 9 9.0 mL	ASAP	25 oC	Causes for rejection include: specimen tube not properly labeled, gross hemolysis, sample placed in serum separator tube. (1)
Hold Clot for Possible Crossmatch (BBHC)	Lavender 9 9.0 mL	ASAP / STAT	25 oC	Patient must have a Blood Bank Identification wristband. Causes for rejection include (of patient sample): : specimen tube not properly labeled, gross hemolysis, sample placed in serum separator tube. (1)
Crossmatch Packed Cells, 1 Unit (BBXM1)	Lavender 9 9.0 mL	ASAP / STAT	25 °C	Patient must have a Blood Bank Identification wristband. All blood components must be infused through a filter. All blood components must be infused within 4 hours from start of infusion. Patient blood type and screen is good for 72 hours. If request for addition units are made after 72 hours, patient should be redrawn for additional crossmatch. Causes for rejection include (of patient sample): specimen tube not properly labeled, gross hemolysis, sample placed in serum separator tube. (1)
Crossmatch Packed Cells, 2 Unit (BBXM2)	Lavender 9 9.0 mL	ASAP / STAT	25 oC	See Crossmatch Packed Cells, 1 Unit (Above).
Crossmatch Packed Cells, 3 Unit (BBXM3)	Lavender 9 9.0 mL	ASAP / STAT	25 oC	See Crossmatch Packed Cells, 1 Unit (Above).
Crossmatch Packed Cells, 4 Unit (BBXM4)	Lavender 9 9.0 mL	ASAP / STAT	25 oC	See Crossmatch Packed Cells, 1 Unit (Above).
Crossmatch Leukopoor, 1 Unit (BBLP)	Lavender 9 9.0 mL	ASAP / STAT	25 oC	Patient must have a Blood Bank Identification wristband. All blood components must be infused through a filter. All blood components must be infused within 4 hours from start of infusion. Patient blood type and screen is good for 72 hours. If request for addition units are made after 72 hours, patient should be redrawn for additional crossmatch. (Cont.) Causes for rejection include (of patient sample): : specimen tube not properly labeled, gross hemolysis, sample placed in serum separator tube. (1) Major indications: reduced risk of febrile reactions, HLA alloimmunization, and CMV infection. (1)

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
Washed Packed Cell, 1 Unit (BBWC1)	Lavender 9  9.0 mL	ASAP / STAT	25 oC	Patient must have a Blood Bank Identification wristband. All blood components must be infused through a filter. All blood components must be infused within 4 hours from start of infusion. Causes for rejection include (of patient sample): specimen tube not properly labeled, gross hemolysis, sample placed in serum separator tube. (1) Major indications: 1) IgA Deficiency, 2) recurrent severe allergic reactions to plasma proteins. (1)
Cryoprecipitate, 5 Units (BBCY5)	Lavender 9  9.0 mL	ASAP / STAT	25 oC	ONCE THAWED, KEEP CRYOPRECIPITATE AT ROOM TEMPERATURE AND TRANSFUSE CRYOPRECIPITATE ASAP. Start cryoprecipitate transfusion not more than 6 hours after thawing. Once thawed it cannot be reissued by the Blood Bank. All blood components must be infused through a filter. All blood components must be infused within 4 hours from start of infusion. Causes for rejection include (of patient sample): specimen tube not properly labeled, gross hemolysis, sample placed in serum separator tube. (1)
Cryoprecipitate, 10 Units (BBCY10)	Lavender 9 9.0 mL	ASAP / STAT	25 oC	See Cryoprecipitate, 5 Units (Above).
Direct Antiglobulin Test, Coombs' Test (BBDAT)	Lavender 9  9.0 mL	ASAP / STAT	25 °C	Causes for rejection include: <b>specimen tube not properly labeled</b> , gross hemolysis, sample placed in serum separator tube. (1)
Fresh Frozen Plasma, 1 Unit (BBFF1)	Lavender 9  9.0 mL	ASAP / STAT	25 °C	Requires 20-30 minutes to thaw and issue. <b>All blood components must be infused through a filter.</b> <b>All blood components must be infused within 4 hours from start of infusion.</b> <b>Once thawed, the plasma can be refrigerated for up to 24 hours in the Blood Bank. (1)</b>
Fresh Frozen Plasma, 2 Unit (BBFF2)	Lavender 9 9.0 mL	ASAP / STAT	25 °C	See Fresh Frozen Plasma, 1 Unit, above.
Fresh Frozen Plasma, 3 Unit (BBFF3)	Lavender 9 9.0 mL	ASAP / STAT	25 oC	See Fresh Frozen Plasma, 1 Unit, above.
Fresh Frozen Plasma, 4 Unit (BBFF4)	Lavender 9 9.0 mL	ASAP / STAT	25 oC	See Fresh Frozen Plasma, 1 Unit, above.

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Fresh Frozen Plasma, 5 Unit (BBF5)	Lavender 9 9.0 mL	ASAP / STAT	25 °C	See Fresh Frozen Plasma, 1 Unit, above.
Fresh Frozen Plasma, 6 Unit (BBF6)	Lavender 9 9.0 mL	ASAP / STAT	25 °C	See Fresh Frozen Plasma, 1 Unit, above.
Plateletpheresis (BBPLTP)	Lavender 9  9.0 mL	ASAP / STAT	25 oC	DO NOT REFRIGERATE PLATELETS! All blood components must be infused through a filter. All blood components must be infused within 4 hours from start of infusion. Storage of platelets is at 20-24 oC (room temp.) with continuous gentle agitation in the Blood Bank. Platelets may not be kept "on hold". (1)
Platelet Concentrate, 1 Unit (BBP1)	Lavender 9  9.0 mL	ASAP / STAT	25 oC	DO NOT REFRIGERATE PLATELETS. All blood components must be infused through a filter. All blood components must be infused within 4 hours from start of infusion. Platelets may not be kept "on hold". (1)
Platelet Concentrate, 5 Units (BBP5)	Lavender 9	ASAP / STAT	25 oC	See Platelet Concentrate, 1 Unit (Above).
Platelet Concentrate, 10 Unit (BBP10)	Lavender 9	ASAP / STAT	25 °C	See Platelet Concentrate, 1 Unit (Above).

# Arthritis Panel



And

And

### Arthritis Panel includes:

Uric Acid (URIC)

Sedimentation Rate (ESR)

Anti Nuclear Antibodies, Screen (ANA)  
and Rheumatoid Factor (RF)

### Transport medium used:

BD Vacutainer Lt. Green Top 4.0 mL  
Glass Tube; Plasma Separation Tube  
(PST) – Gel & Lithium Heparin

BD Vacutainer Lavender Top 4.0 mL  
Plastic Tube; 7.2 mg K<sub>2</sub> EDTA

BD Vacutainer Plain Sterile Red Top  
10 mL Tube; (No additives)

### Number to submit:

1

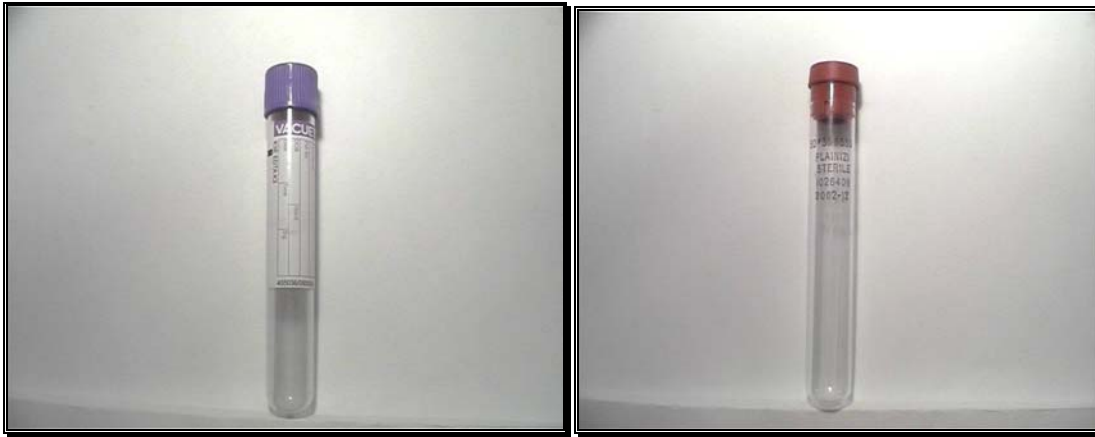
1

1

**Note:** A total of three tubes should be submitted to the laboratory.

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
Uric Acid, Blood (URIC)	4.0 mL	ASAP ≤ 2 hours	25 °C	Fasting specimen desirable. Uric acid concentration is usually higher in the morning and lower in the evening. Specimen should be centrifuged ASAP.(1)
Sedimentation Rate (ESR)	4.0 mL	ASAP ≤ 2 hours	25 °C	Specimen must be received within 2 hours of collection. Causes for rejection include: insufficient blood, clotted, hemolyzed specimen. (1)
Anti Nuclear Antibodies, Screen (ANA) and Rheumatoid Factor (RF)	10 ml	ASAP ≤ 2 hours	25 °C	ANA commonly includes titers and pattern of nuclear fluorescence on positive patients. (1)

# Cord Blood Panel



**And**

**Cord Blood Panel includes:**

ABO and RH Type (BBTYPE) **and**  
Direct Antiglobulin Test, Coombs'  
Test (BBDAT)

Rapid Plasma Reagin Test (RPR)

**Transport medium used:**

Greiner Vacuette Lavender Top 9.0 mL  
Plastic Tube; 1.8 mg K<sub>3</sub> EDTA

BD Vacutainer Plain Sterile Red Top  
10 mL Tube; (No additives)

**Number to submit:**

1

1

**Note:** A total of two tubes should be submitted to the laboratory.

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
ABO and RH Type (BBTYPE) <b>and</b> Direct Antiglobulin Test, Coombs' Test (BBDAT)	9.0 mL	ASAP / STAT	25 °C	<p>Patient must have a wristband or other positive written identification on the body. This must be physically attached to the body, not on the wall or the bed or clipped to the chart.</p> <p>At the patient's side, ask the patient to give his/her name. Compare with the the hospital wristband. Label the Blood Bank wristband with the patient's full name, medical record number, date, time and initials of the collector. Label specimen tube with the Blood Bank Identification label from the wristband. Label requisition, verify the patient's identity with hospital wristband and Blood Bank wristband. It's always best to stamp the requisition with the patient's identification plate to avoid transcription errors. Take extra care with identification of unresponsive patients. (Cont.)</p>

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
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Continued:	Causes for rejection include: specimen tube not properly labeled, gross hemolysis, sample placed in serum separator tube.(1)
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Rapid Plasma Reagin Test (RPR)	10.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge and refrigerate serum.
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# General Health Panel



And

And

**General Health Panel includes:**

**Transport medium used:**

**Number to submit:**

Comprehensive Metabolic Panel (CMP)	BD Vacutainer Lt. Green Top 4.0 mL Glass Tube; Plasma Separation Tube (PST) – Gel & Lithium Heparin	1
Complete Blood Count (CBC)	BD Vacutainer Lavender Top 4.0 mL Plastic Tube; 7.2 mg K <sub>2</sub> EDTA	1
Thyroid Stimulating Hormone (TSH)	BD Vacutainer Gold Top 5.0 mL Plastic Tube; Serum Separation Tube (SST) – Gel and Clot Activator	1

**Note:** A total of three tubes should be submitted to the laboratory.

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
Comprehensive Metabolic Panel (CMP)	4.0 mL	ASAP ≤ 2 hours	25 °C	
Complete Blood Count (CBC)	4.0 mL	ASAP ≤ 2 hours	25 °C	Mix specimen 10 times by gentle inversion. Causes for rejection include: wrong tube, clotted specimen, hemolyzed specimen, or dilution of blood with I.V. fluid. (1)
Thyroid Stimulating Hormone (TSH)	5.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge and refrigerate serum. (1)

# Hepatitis Panel (Acute)



And

And

**Hepatitis Panel (Acute) includes:**

Hepatitis C Antibody (HEPC)

Hepatitis B Surface Antigen (HBSAG) **and**  
Hepatitis A IgM Antibody (HAIGM) **and**  
Hepatitis B Core Antibody IgM (HBCM)

**Transport medium used:**

BD Vacutainer Lavender Top 4.0 mL  
Plastic Tube; 7.2 mg K<sub>2</sub> EDTA

BD Vacutainer Gold Top 5.0 mL Plastic  
Tube; Serum Separation Tube (SST) – Gel  
and Clot Activator

**Number to submit:**

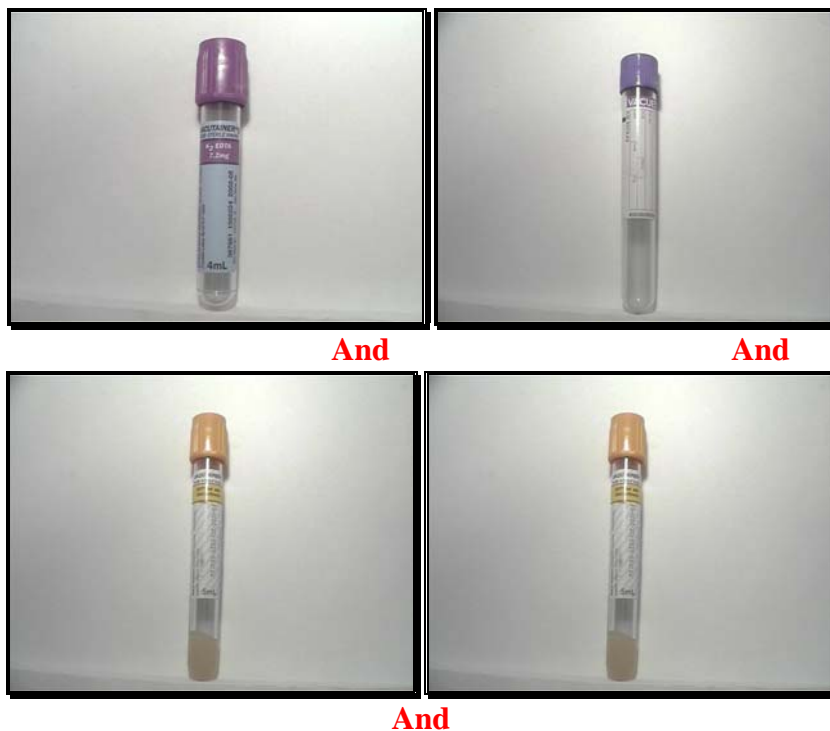
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2

**Note:** A total of three tubes should be submitted to the laboratory.

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
Hepatitis C Antibody (HEPC)	Lavender Top 4.0 mL	ASAP ≤ 2 hours	25 °C	Centrifuge tube, separate serum and freeze. (1)
Hepatitis B Surface Antigen (HBSAG) <b>and</b> Hepatitis A IgM Antibody (HAIGM) <b>and</b> Hepatitis B Core Antibody IgM (HBCM)	Gold Top 5.0 mL x 2	ASAP ≤ 2 hours	25 °C	Centrifuge and refrigerate serum. (1)

# Obstetrics Panel



**Obstetrics Panel includes:**

**Transport medium used:**

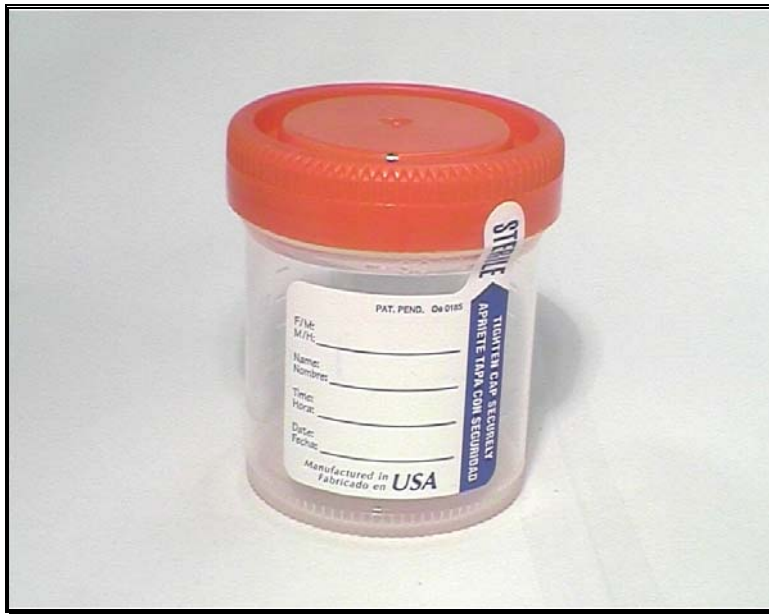
**Number to submit:**

Complete Blood Count (CBC)	BD Vacutainer Lavender Top 4.0 mL Plastic Tube; 7.2 mg K <sub>2</sub> EDTA	1
ABO and RH Type (BBTYPE) and Antibody Screen (BBSCR)	Greiner Vacuette Lavender Top 9.0 mL Plastic Tube; 1.8 mg K <sub>2</sub> EDTA	1
Hepatitis B Surface Antigen (HBSAG)	BD Vacutainer Gold Top 5.0 mL Plastic Tube; Serum Separation Tube (SST) – Gel and Clot Activator	1
Rapid Plasma Reagin Test (RPR) and Rubella Antibody Screen (RUB)	BD Vacutainer Gold Top 5.0 mL Plastic Tube; Serum Separation Tube (SST) – Gel and Clot Activator	1

**Note:** A total of four tubes should be submitted to the laboratory.

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
Complete Blood Count (CBC)	4.0 mL	ASAP ≤ 2 hours	25 °C	Mix specimen 10 times by gentle inversion. Causes for rejection include: wrong tube, clotted specimen, hemolyzed specimen, or dilution of blood with I.V. fluid. (1)

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
ABO and RH Type (BBTYPE)and Antibody Screen (BBSCR)	Lavender 9 9.0 mL	ASAP / STAT	25 oC	<p>Patient must have a wristband or other positive written identification on the body. This must be physically attached to the body, not on the wall or the bed or clipped to the chart.</p> <p>At the patient's side, ask the patient to give his/her name. Compare with the the hospital wristband. Label the Blood Bank wristband with the patient's full name, medical record number, date, time and initials of the collector. Label specimen tube with the Blood Bank Identification label from the wristband. Label requisition, verify the patient's identity with hospital wristband and Blood Bank wristband. It's always best to stamp the requisition with the patient's identification plate to avoid transcription errors. Take extra care with identification of unresponsive patients.</p> <p>Antibody Screen (BBSCR) a.k.a. Indirect Antiglobulin Test Causes for rejection include: specimen tube not properly labeled, gross hemolysis, sample placed in serum separator tube. (1)</p>
Hepatitis B Surface Antigen (HBSAG)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate serum. (1)
Rapid Plasma Reagin Test (RPR) and Rubella Antibody Screen (RUB)	Gold Top 5.0 mL	ASAP < 2 hours	25 oC	Centrifuge and refrigerate serum. (1)



**Sterile specimen cup**

Test Name	Device/volume	Transport time (Max)	Transport temp (°C)	Comments
<b>Panels:</b>				
Urinalysis (UA)	≥ 10 mL	ASAP ≤ 2 hours	25 °C	Instruction should be given to the patient in methods of collection. Urine midstream is preferred. If the urine is collected by catheter, the collection container should be so labeled. If urine is not tested immediately, the specimen should be refrigerated until test is performed. However, refrigeration may precipitate crystals not originally present. Causes for rejection include: specimen delayed in transport, fecal contamination, bacterial overgrowth, or decomposition. (1)
Urinalysis Dipstick (URDIP)	≥ 10 mL	ASAP ≤ 2 hours	25 °C	See Urinalysis (UA) above.
Urine Adult Drug Screen (URTOX)	> 10 mL	ASAP < 2 hours	25 oC	For medical purpose only! Specimen should be refrigerated. Specify the drug or drugs suspected in an emergency situation. Causes for rejection include: tests for unusual dilution or alteration. (1)
<b>Individual Tests:</b>				
Amylase, Urine (UAM)	≥ 2 mL	ASAP ≤ 2 hours	25 °C	Keep specimen refrigerated. (1)
Beta-Human Chorionic Gonadotropin ( -hCG) Pregnancy Test, Urine, Qualitative (UHCG)	> 2 mL	ASAP < 2 hours	25 oC	First voided morning specimen preferred (most concentrated). Causes for rejection include: gross contamination, low urine specific gravity, proteinuria (applicable to certain tests), gross lipemia or turbidity. (1)

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
Calcium, Urine (UCAL)	≥ 2 mL	ASAP ≤ 2 hours	25 °C	If patient is on a stone prevention regime and test is for follow-up, then medications should not be stopped for the test. (1)
Chloride, Urine (UCHL)	≥ 2 mL	ASAP ≤ 2 hours	25 °C	Refrigerate specimen. (1)
Creatinine, Urine (UCREA)	≥ 2 mL	ASAP ≤ 2 hours	4 °C	Refrigerate after collection. Keep specimen on ice during transport. (1)
Glucose, Urine (UGLU)	> 2 mL	ASAP < 2 hours	25 oC	If specimen is not processed immediately, please refrigerate. (1)
Lytes, Urine (NA, K & Cl) (ULYTES)	> 2 mL	ASAP < 2 hours	25 oC	Urine osmolality may be ordered with urine electrolytes, usually it must be specifically ordered. (1)
Magnesium, Urine (UMG)	> 2 mL	ASAP < 2 hours	25 oC	If bedpan is used for collection, only use plastic and not metal. Causes for rejection include: specimen allowed to contact metal. (1)
Microalbumin, Urine Random (MALBP)	≥ 2 mL	ASAP ≤ 2 hours	25 °C	Collect specimen in the AM. Discard first void specimen, collect next void available. (1)
Myoglobin, Urine (MYOGL)	≥ 2 mL	ASAP ≤ 2 hours	25 °C	<b>Test is a send out to a reference laboratory.</b>
Osmolality, Urine (UOSMO)	≥ 2 mL	ASAP ≤ 2 hours	25 °C	Refrigerate specimen. (1)
Phosphorus, Urine (UPO4)	≥ 2 mL	ASAP ≤ 2 hours	25 °C	Refrigerate specimen. (1)
Potassium, Urine (UPOT)	≥ 2 mL	ASAP ≤ 2 hours	25 °C	Refrigerate specimen. (1)
Protein, Urine (UPRO)	≥ 2 mL	ASAP ≤ 2 hours	25 °C	Refrigerate specimen. (1)
Reducing Substances, Urine (URRED)	> 2 mL	ASAP < 2 hours	25 oC	If specimen is not processed immediately, please refrigerate. (1)
Sodium, Urine (USOD)	≥ 2 mL	ASAP ≤ 2 hours	25 °C	Refrigerate specimen. (1)
Urea Nitrogen, Urine (UREA)	≥ 2 mL	ASAP ≤ 2 hours	25 °C	Refrigerate specimen. (1)
Uric Acid, Urine (UUA)	> 2 mL	ASAP < 2 hours	25 oC	Maintain patient's usual diet. Drugs, such as aspirin, other anti-inflammatory preparations, x-ray contrast agent, vitamin C, and warfarin, affect uric acid excretion. Diuretics decrease uric acid excretion. Do not refrigerate specimen. (1)



**24 Hour Urine Collection Container  
Maximum Volume: 3000 mL (3 Liters)**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
<b>Panels:</b>				
Creatinine Clearance Panel 24 Hr Urine (UCRCL)	24 hour collection	after 24 hour collection	25 oC	<p>Collect urine for a total of 24 hours. A good collection regimen is as follows: Discard first morning specimen on day one. Collect all specimens during the remainder of the day and evening. Collect the first morning specimen on day two. stop collection.</p> <p>Label container with patient's name, date, and time collection started and finished.</p> <p>Blood creatinine should be ordered at the same time. Patient's age, height, and weight are needed.</p> <p>Causes for rejection include: no blood creatinine ordered, urine specimen not timed. (1)</p>
Total Protein Panel 24 Hr Urine (UTP)	24 hour collection	after 24 hour collection	25 °C	<p>Collect urine for a total of 24 hours. A good collection regimen is as follows: Discard first morning specimen on day one. Collect all specimens during the remainder of the day and evening. Collect the first morning specimen on day two. Stop collection. .</p> <p>Label container with patient's name, date, and time collection started and finished. (1)</p>

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
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Urea Clearance Panel 24 Hr Urine (UUREAP)	24 hour collection	after 24 hour collection	25 °C	<p>Collect urine for a total of 24 hours. A good collection regimen is as follows: Discard first morning specimen on day one. Collect all specimens during the remainder of the day and evening. Collect the first morning specimen on day two. Stop collection.</p> <p>Label container with patient's name, date, and time collection started and finished.</p> <p>Blood urea nitrogen(BUN) should Be ordered at the same time. Patient's Age,height and weight are needed. Causes for rejection include: No blood urea nitrogen ordered, urine Specimen not timed. (1)</p>
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Uric Acid Panel 24 Hr Urine (UURIC)	24 hour collection	after 24 hour collection	25 °C	<p>Collect urine for a total of 24 hours. A good collection regimen is as follows: Discard first morning specimen on day one. Collect all specimens during the remainder of the day and evening. Collect the first morning specimen on day two. Stop collection. .</p> <p>Label container with patient's name, date, and time collection started and finished.</p> <p>Do not refrigerate. (1)</p>
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**Individual Tests:**

Microalbumin, 24 Hour Urine (MIC24P)	24 hour collection	after 24 hour collection	25 °C	<p>Collect urine for a total of 24 hours. A good collection regimen is as follows: Discard first morning specimen on day one. Collect all specimens during the remainder of the day and evening. Collect the first morning specimen on day two. Stop collection. .</p> <p>Label container with patient's name, date, and time collection started and finished. (1)</p>
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**CSF Sterile Graduated Manometer Tube Kit  
(Tubes Numbered 1 - 4)**

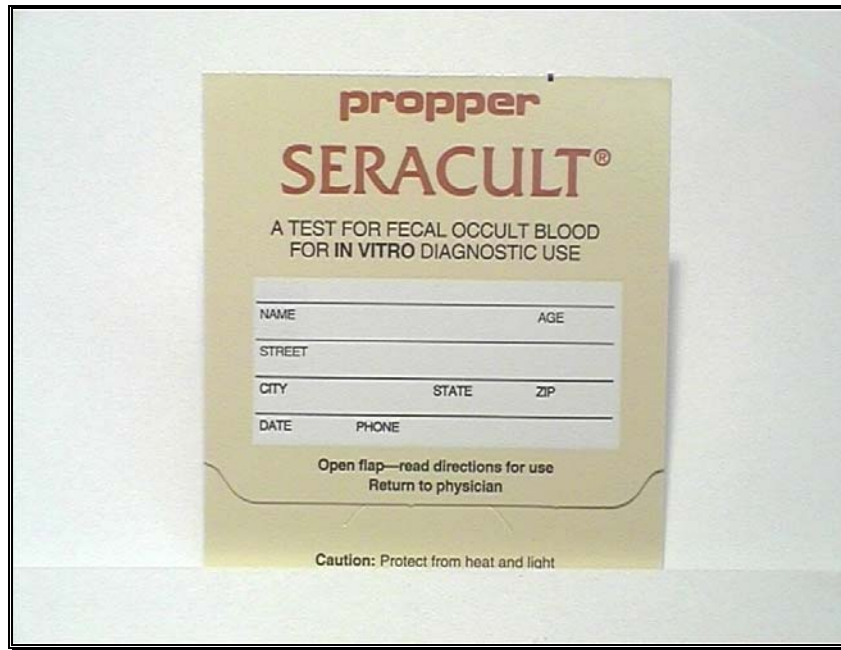
<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Cerebrospinal Fluid, Lactate Dehydrogenase (CSFLDH)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Submit tube # 1 for LDH to chemistry.
Cerebrospinal Fluid, Glucose (CSFGLU)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Submit tube # 1 for Glucose to chemistry. Plasma glucose should also be drawn, ideally 2 hours before lumbar puncture. (1)
Cerebrospinal Fluid, Total Protein (CSFPRO)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Submit tube # 1 for Total Protein to chemistry.
Cerebrospinal Fluid Microbiology Studies, Grams Stain & Culture, BAD, Cryptococcal Antigen, and/or India Ink	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Submit Tube #2 for Microbiology Studies. Do Not Refrigerate Specimen.
Cerebrospinal Fluid, Cell Count with Differential (CSF)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Submit tube # 3 for Cell Count with Manual Differential to hematology.
Cerebrospinal Fluid, Miscellaneous Studies Fungal (CXF), VDRL Qualitative (CSFVD), VDRL Quantitative	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Submit tube # 4 for additional miscellaneous studies such as Fungus, Viral (i.e. VDRL) and/or Pathology.

# Body Fluids

(Other than CSF and Urine)

Collect specimen in sterile specimen collection cup or other sterile body fluid collection container without additives.

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
<b>Hematology Studies:</b> Collect specimen in sterile specimen collection cup or other sterile body fluid collection container <u>without additives</u> . The following are typical Hematology tests:				
Fluid Analysis, Cell Count With Differential (FLUID)	≥ 4 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Crystals (FLCRY)	≥ 4 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
<b>Chemistry Studies:</b> Collect specimen in sterile specimen collection cup or other sterile body fluid collection container <u>without additives</u> . The following are typical Chemistry tests:				
Fluid Albumin (FLALB)	≥ 4 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Amylase (FLAMY)	≥ 4 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Cholesterol (CHOLF)	≥ 4 mL	ASAP ≤ 1 hour	25 °C	<b>Test is a send out to a reference laboratory.</b> Please indicate specimen type.
Fluid Glucose (FLGLU)	≥ 4 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Lactate (FLLACT)	≥ 4 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Lactate Dehydrogenase (FLLDH)	≥ 4 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid pH (FLPH)	≥ 4 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Specific Gravity (FLSG)	≥ 4 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Total Protein (FLTP)	≥ 4 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.



**SERACULT Test Card for Fecal Occult Blood**

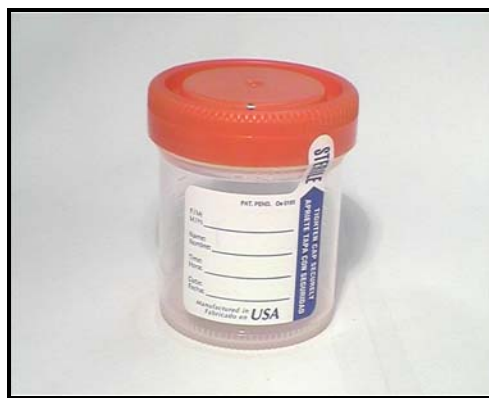
Test Name	Device/volume	Transport time (Max)	Transport temp (°C)	Comments
Occult Blood, Stool, 1 Day (GUAIC1)	Guaiac Card	Same Day	25 °C	Fresh specimen is to be smeared onto the Guaiac Cards. Protect form heat and light. Avoid collection of stool from toilet bowl water which may cause false positives. See “ <b>Note</b> ” this page. (1)
Occult Blood, Stool, 3 Days (GUA13)	Guaiac Cards	Day three of last collection	25 °C	Fresh specimen is to be smeared onto the Guaiac Cards. Protect form heat and light. Avoid collection of stool from toilet bowl water which may cause false positives. Three separate samples are to be collected for three consecutive days. See “ <b>Note</b> ” this page. (1)

**Note:** Patient should avoid oral supplements such as vitamin C and iron, red meat diets and peroxidase-rich vegetable (turnips, horseradish, artichokes, mushrooms, radishes, broccoli, bean sprouts, cauliflower, apples, oranges, bananas, cantaloupes and other melons, grapes) for 3-5 days before collection to decrease the incidence of false-positives. Alcohol and aspirin, especially together, and other gastric irritants should also be avoided.

# Miscellaneous Tests

Test Name	Device/volume	Transport time (Max)	Transport temp (°C)	Comments
Bleeding Time – Template, Mielke (BLEED)	--	--	--	An in vivo test performed at the patient's bedside by a Clinical Laboratory Scientist. Consent may be requested and patient should be informed of possible scar/keloid formation. (1) Platelet counts below 50,000 requires ordering physicians approval prior to performing.
Eosinophil Smear (Ear, Nose, Throat, or Urine) (EOSM)	≥ 1 mL or CultureSwab	ASAP ≤ 1 hour	25 °C	Send fresh sputum or urine in a sterile specimen collection cup. Send ear or nasal secretion on CultureSwab. Please indicate specimen type and collection source. (1)

## Transport devices for Eosinophil Smear (EOSM)



Sterile Specimen Cup



**OR** CultureSwab (Modified Stuart's)

# Rhogam



**RhoGAM – Rh<sub>0</sub>(D) Immune Globulin (Human)**

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
Rhogam, Rho(D) Immune Globulin (Human) (RHO)	300 ug Dose	ASAP	Room Temperature	See "Principle" and "Specimen" below for comments.

**Principle:**

- A) Rho (D) Immune Globulin (Human) Acts by suppressing the immune response of Rh negative individuals to Rh positive red blood cells.
- B) Exposure to Rh positive red blood cells can occur as a consequence of pregnancy, abortion, delivery, amniocentesis or by transfusion of an Rh negative individual with Rh positive red blood cells.
- C) Prevention of isoimmunization by Rh positive babies prevents hemolytic disease of the newborn. The Rho (D) Immune Globulin must be given Antepartum at 28 weeks and within 72 hours following any of the above events.

**Specimen:**

- A) One EDTA Vacutainer, 4-9 mL size.



**BD Microtainer Lavender Top 500 µL Plastic Tube  
(K<sub>2</sub> EDTA) with Microtainer Tube Extender**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp(°C)</b>	<b>Comments</b>
<b>Panels:</b>				
Complete Blood Count with Manual Differential (CBC)	250 µL (minimum)	ASAP ≤ 2 hours	25 °C	Mix specimen 10 times by gentle inversion. <b>This test automatically includes a manual differential.</b> Causes for rejection include: wrong tube, clotted specimen, hemolyzed specimen, or dilution of blood with I.V. fluid. (1)
Hemogram (HEMO)	250 µL (minimum)	ASAP ≤ 2 hours	25 °C	Mix specimen 10 times by gentle inversion. Causes for rejection include: wrong tube, clotted specimen, hemolyzed specimen, or dilution of blood with I.V. fluid. (1)
<b>Individual Tests:</b>				
Hematocrit (HCT)	250 µL (minimum)	ASAP ≤ 2 hours	25 °C	Causes for rejection include: clotted or hemolyzed specimen. (1)

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp(°C)</b>	<b>Comments</b>
Lead Level, Neonates (LEADC)	500 $\mu$ L (minimum)	ASAP $\leq$ 2 hours	4 °C	<p><b>Specimen should be refrigerated.</b>            Do not separate cells, prevent clotting, direct exposure to sunlight, and elevated temperatures.            Causes for rejection include:            wrong tube, specimen not refrigerated, clotted specimen.            Other acceptable collection tubes include: Na<sub>2</sub>EDTA or Sodium Heparin . See “Note” (1, 2)</p>
<p><b>Note:</b> Caution must be observed when K<sub>2</sub>EDTA or Na<sub>2</sub>EDTA tubes are used, since low blood lead levels can be obtained with poorly filled blood sampling tubes. When using EDTA as an anticoagulant, use less than or equal to 1.8 mg EDTA / mL of blood. <b>It is recommended that K<sub>2</sub>EDTA, Na<sub>2</sub>EDTA or Sodium Heparin tubes be at least ½ full.</b></p>				
Reticulocyte Count (RETIC)	250 $\mu$ L (minimum)	ASAP $\leq$ 2 hours	25 °C	<p><b>If Reticulocyte Count is combined with a CBC, please collect a minimum of 300 <math>\mu</math>L</b>            Causes for rejection include:            clotted or hemolyzed specimen. (1)</p>
Sickle Cell Screen (SICKLE)	250 $\mu$ L (minimum)	ASAP $\leq$ 2 hours	25 °C	<p>Causes for rejection include:            clotted or hemolyzed specimen. (1)</p>

## Neonatal Transfusion / Limited Donor Program

1) Principle:

The unique small volume requirements of transfusion to infants and newborns make it possible to provide several aliquots from a single donor unit, thus limiting donor exposure to disease possibility (Limited Donor Policy).

2) Specimen:

**One EDTA Microtainer is usually sufficient for both the plasma and cell requirements.** An initial pre-transfusion specimen must be tested including serum or plasma of either the infant or the mother, and red cells from the infant.



BD Microtainer Lavender Top 500  $\mu$ L Plastic Tube (K<sub>2</sub> EDTA) with Microtainer Tube Extender

3) Procedure:

Type compatible, CMV negative, irradiated blood with sterile satellite bags will be ordered and assigned for the infant.

Test Name	Device/ volume	Transport time (Max)	Transport temp( $^{\circ}$ C)	Comments
Crossmatch Packed Cells, 1 Unit (BBXM1)	500 $\mu$ L (minimum)	ASAP / STAT	25 $^{\circ}$ C	<p><b>Patient must have an Identification wristband.</b></p> <p><b>All blood components must be infused through a filter.</b></p> <p><b>All blood components must be infused within 4 hours from start of infusion.</b></p> <p>Causes for rejection include (of patient sample): <b>specimen tube not properly labeled</b>, gross hemolysis, sample placed in serum separator tube. (1)</p>

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp(°C)</b>	<b>Comments</b>
Fresh Frozen Plasma, 1 Unit (BBFF1)	500 uL (minimum)	ASAP / STAT	25 °C	<b>All blood components must be infused through a filter. All blood components must be infused within 4 hours from start of infusion. (1)</b>
Platelet Concentrate, 1 Unit (BBP1)	500 uL (minimum)	ASAP / STAT	25 °C	<b>DO NOT REFRIGERATE PLATELETS. All blood components must be infused through a filter. All blood components must be infused within 4 hours from start of infusion. Keep at room temperature. May not be kept "on hold". (1)</b>



**BD Microtainer Red Top 500 µL Plastic Tube with  
Microtainer Tube Extender - No Additives**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp(°C)</b>	<b>Comments</b>
Gentamicin, Peak (GENP)	500 µL (minimum)	ASAP ≤ 1 hour	25 °C	Peak sampling time of 30-60 minutes after end of 30-minute I.V. infusion or 60 minute post I.M. dose. <b>Centrifuge and separate within 1 hour of collection and refrigerate or freeze until assayed.</b> (1)
Gentamicin, Random (GENR)	500 µL (minimum)	ASAP ≤ 1 hour	25 °C	<b>Centrifuge and separate within 1 hour of collection and refrigerate or freeze until assayed.</b> (1)
Gentamicin, Trough (GENT)	500 µL (minimum)	ASAP ≤ 1 hour	25 °C	Trough sampling time immediately prior to next dose. <b>Centrifuge and separate within 1 hour of collection and refrigerate or freeze until assayed.</b> (1)
Theophylline (THEO)	500 µL (minimum)	ASAP ≤ 2 hours	25 °C	Measure trough & peak levels. If toxicity is suspected, draw a level any time during continuous I.V. infusion, or 2 hours after an oral dose. Refrigerate, do not freeze, serum. Causes for rejection include: specimen not refrigerated. (1)

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp(°C)</b>	<b>Comments</b>
Tobramycin, Peak (TOBP)	500 $\mu$ L (minimum)	ASAP $\leq$ 1 hour	25 °C	Collect 30-60 minutes after end of 30 minute I.V. infusion or 60 minutes post I.M. dose. <b>Centrifuge and separate within 1 hour of collection and refrigerate or freeze until assayed. (1)</b>
Tobramycin, Random (TOBR)	500 $\mu$ L (minimum)	ASAP $\leq$ 1 hour	25 °C	<b>Centrifuge and separate within 1 hour of collection and refrigerate or freeze until assayed. (1)</b>
Tobramycin, Trough (TOBT)	500 $\mu$ L (minimum)	ASAP $\leq$ 1 hour	25 °C	Collect immediately prior to next dose. <b>Centrifuge and separate within 1 hour of collection and refrigerate or freeze until assayed. (1)</b>
Vancomycin, Peak (VANCO)	500 $\mu$ L (minimum)	ASAP $\leq$ 2 hours	25 °C	Collect sample at 2 hours after dose. Centrifuge specimen and freeze until assayed. Reject specimen if more than 2 hours old. (1)
Vancomycin, Trough (VANCOT)	500 $\mu$ L (minimum)	ASAP $\leq$ 2 hours	25 °C	Collect immediately prior to next dose. Centrifuge specimen and freeze until assayed. Reject specimen if more than 2 hours old. (1)



**BD Microtainer Light Green Top 600 µL Plastic Tube  
Plasma Separation Tube (PST) – Gel & Lithium Heparin  
with Microtainer Tube Extender**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp(°C)</b>	<b>Comments</b>
<b>Panels:</b>				
Basic Metabolic Panel (BMP)	1-2 tubes (minimum)	ASAP ≤ 2 hours	25 °C	
Cardiac Panel (Creatine Phosphokinase)(CKMBP)	1-2 tubes (minimum)	ASAP ≤ 2 hours	25 °C	
Comprehensive Metabolic Panel (CMP)	1-2 tubes (minimum)	ASAP ≤ 2 hours	25 °C	
Hepatic Function Panel (HFP)	1-2 tubes (minimum)	ASAP ≤ 2 hours	25 °C	<b>Protect bilirubin specimen from light.</b> Avoid hemolysis. (1)
Iron & TIBC Panel (FETIBC)	1-2 tubes (minimum)	ASAP ≤ 2 hours	25 °C	Iron levels are 30% higher in the morning, blood levels should be determined on fasting AM samples. Centrifuge and freeze if not assayed immediately. (1)
Neonatal Bilirubin Panel (NBILI)	1-2 tubes (minimum)	ASAP ≤ 2 hours	25 °C	<b>Protect from light.</b> Store specimen in refrigerator. Causes for rejection include: specimen not protected from light, gross hemolysis. (1)
Renal Panel (RENAL)	1-2 tubes (minimum)	ASAP ≤ 2 hours	25 °C	

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp(°C)</b>	<b>Comments</b>
Acetone (Ketones)(KET)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Causes for rejection include: hemolysis. (1)
Alanine Aminotransferase (ALT a.k.a. SGPT)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Causes for rejection include: excessive hemolysis. (1)
Albumin (ALB)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	
Alkaline Phosphatase (ALP)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Patient should be fasting. Refrigerate specimen. Increases of 5-10% can be expected after less than 4 hours storage at 4 °C. Best to analyze specimen on same day of collection. (1)
Ammonia (AMMO)	600 uL (minimum)	<b>ASAP ≤ 20 minutes</b>	<b>4 °C</b>	<b>Specimen should be transported to the laboratory on ice and test should be performed within 20 minutes of collection.</b> Avoid hemolysis of specimen which increases plasma ammonia. (1)
Amylase, Blood (AMY)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Anticoagulants other than heparin, diminishes amylase activity. (1)
Aspartate Aminotransferase (AST a.k.a. SGOT)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Avoid hemolysis. (1)
Bilirubin, Total (BILT)	600 uL (minimum)	ASAP ≤ 1 hour	25 °C	<b>Store in refrigerator and protect from exposure to light.</b> Causes for rejection include: gross hemolysis and specimen not protected from light. (1)
Calcium (CA)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Morning fasting sample desired. Refrigerate specimen and avoid hemolysis. (1)
Carbon Dioxide (CO2)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Specimen should be kept tightly closed, as CO <sub>2</sub> will diffuse out, causing erroneous values. (1)
Chloride (CL)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Store in refrigerator. (1)
Cholesterol, Blood (CHOL)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	For optimum patient condition at time of drawing: no change in diet for 3 weeks, stable body weight, and fasting for 12 hours prior to collection. (1)
C-Reactive Protein (CRP)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Do not freeze specimen. (1)
Creatine Phosphokinase, Total (CK)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Centrifuge and separate serum from red cells. Store at 4 °C and avoid hemolysis. (1)
Creatinine (CRE)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Fasting specimen desirable, avoid hemolysis. (1)
Gamma Glutamyl Transpeptidase (GGT)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Fasting specimen desired. Since elevations may occur with phenytoin or phenobarbital therapy, alternate tests, such as leucine aminopeptidase (LAP) or 5' nucleotidase, may be preferred in such patients. (1)

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp(°C)</b>	<b>Comments</b>
Glucose (GLU)	600 uL (minimum)	ASAP ≤ 30 minutes	25 °C	<b>Specimen should be centrifuged ASAP.</b> Glucose will decrease 5-10 mg/dl per hour in un-separated, room temperature blood not collected with sodium fluoride. Indicate whether the patient has been fasting for 8 hours or not fasting. (1)
Iron, Total (IRON)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Iron levels are 30% higher in the morning and blood levels should be determined on fasting AM samples. Centrifuge and freeze if not assayed immediately. (1)
Ketones (Acetone)(KET)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Causes for rejection include: hemolysis. (1)
Lactate Dehydrogenase (LDH)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Causes for rejection include: hemolysis. (1)
Lipase (LIP)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	
Magnesium (MG)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	<b>Specimen should be centrifuged ASAP.</b> Causes for rejection include: hemolysis. (1)
Myoglobin (MYOG)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	
Phosphorus (PHOS)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Fasting specimen desirable. Phosphorus levels are lower following meals. <b>Specimen should be centrifuged ASAP to avoid false elevations.</b> Avoid overheating. Causes for rejection include: hemolysis. (1)
Potassium (K)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	<b>Specimen should be centrifuged ASAP.</b> Storage of unspun blood at 4 °C causes serum & plasma K+ to increase. Causes for rejection include: hemolysis. (1)
Protein, Total (TP)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	<b>Specimen should be centrifuged ASAP.</b> (1)
Sodium (NA)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Avoid use of Sodium Heparin tubes. (1)
Triglycerides (TRIG)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Patient should be fasting for 12-14 hours. Causes for rejection included: collection in glycerinated tube, nonfasting specimen. (1)
Urea Nitrogen, Blood (BUN)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	
Uric Acid, Blood (URIC)	600 uL (minimum)	ASAP ≤ 2 hours	25 °C	Fasting specimen desirable. Uric acid concentration is usually higher in the morning and lower in the evening. <b>Specimen should be centrifuged ASAP.</b> (1)

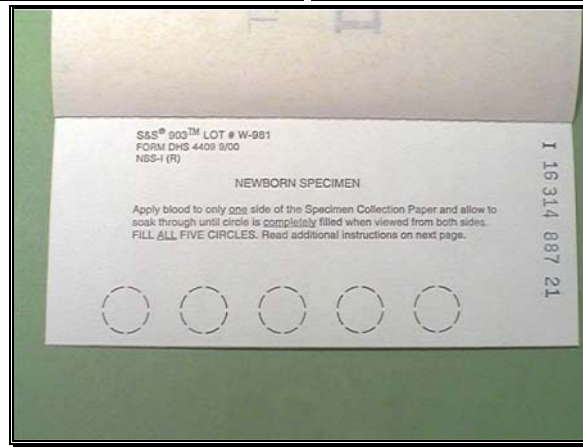
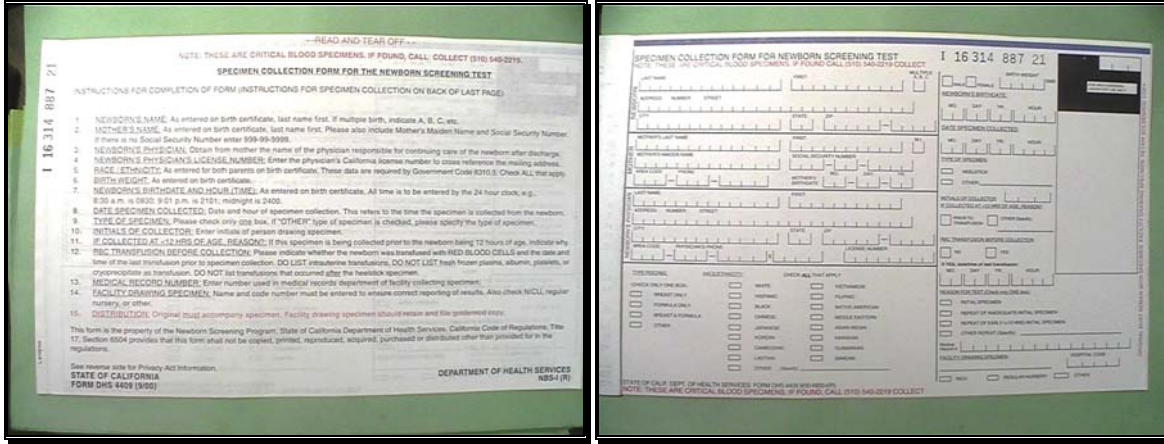
**CONTAINER IS SPECIALLY PREPARED  
 BY A CLINICAL LABORATORY SCIENTIST!  
 PLEASE CALL HEMATOLOGY / COAGULATION  
 DEPARTMENT AT 468-6070 FOR COLLECTION TUBE!**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Activated Partial Thromboplastin Time (APTT)	1.0 mL (Minimum)	ASAP ≤ 1 hour	25 °C	Causes for rejection include: hemolyzed specimen, specimen received 4 hours after collection, clotted specimen. (1)
Prothrombin Time w/INR - International Normalized Ratio (PT)	1.0 mL (Minimum)	ASAP ≤ 1 hour	25 °C	Causes for rejection include: hemolyzed specimen, lipemic, or icteric (possible interference with photo-optical clot detection), specimen received 24 hours after collection, clotted specimen. (1)



**Sterile specimen cup**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Urinalysis (UA)	≥ 1 mL	ASAP ≤ 2 hours	25 °C	Urine midstream is preferred. If the urine is collected by catheter, the collection container should be so labeled. If urine is not tested immediately, the specimen should be refrigerated until test is performed. However, refrigeration may precipitate crystals not originally present. Causes for rejection include: specimen delayed in transport, fecal contamination, bacterial overgrowth, or decomposition. (1)
Urine Newborn Drug Screen (NDRUG)	≥ 1 mL	ASAP ≤ 2 hours	25 °C	<b>For medical purpose only!</b> <b>Specimen should be refrigerated.</b> Specify the drug or drugs suspected in an emergency situation. <b>Causes for rejection include:</b> tests for unusual dilution or alteration. (1)



**Newborn PKU Screening Test**

Test Name	Device/volume	Transport time (Max)	Transport temp (°C)	Comments
Phenylketonuria, Phenylalanine Hydroxylase Screen (PKU)	PKU Test Cards	--	--	<p><b>Test is a send out to a reference laboratory.</b> Blood collection should ideally be made 48-120 hours of age and has been on a milk protein diet for at least 24 hours.</p> <p>Do not collect blood with capillary tube and then apply to test cards. Do not collect from cord blood. Do not over saturate test card.</p> <p>Please allow blood to air dry Please include information regarding blood transfusions, antibiotics, or other medications administered to infant, which may influence screening test results. (1)</p>



**CSF Sterile Graduated Manometer Tube Kit  
(Tubes Numbered 1 - 4)**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Cerebrospinal Fluid, Lactate Dehydrogenase (CSFLDH)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Submit tube # 1 for LDH to chemistry.
Cerebrospinal Fluid, Glucose (CSFGLU)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Submit tube # 1 for Glucose to chemistry. Plasma glucose should also be drawn, ideally 2 hours before lumbar puncture. (1)
Cerebrospinal Fluid, Total Protein (CSFPRO)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Submit tube # 1 for Total Protein to chemistry.
Cerebrospinal Fluid, Microbiology Studies, Grams Stain & Culture, BAD, Cryptococcal Antigen, and/or India Ink	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Submit tube # 2 for Microbiology Studies. <b>Do Not Refrigerate Specimen.</b>
Cerebrospinal Fluid, Cell Count with Differential (CSF)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Submit tube # 3 for Cell Count with Manual Differential to hematology.
Cerebrospinal Fluid, Miscellaneous Studies Fungal (CXF), VDRL Qualitative (CSFVD), VDRL Quantitative	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Submit tube # 4 for additional miscellaneous studies such as Fungus, Viral (i.e. VDRL) and/or Pathology.

# Body Fluids

## (Other than CSF and Urine)

Collect specimen in sterile specimen collection cup or other sterile body fluid collection container without additives.

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
<b>Hematology Studies:</b>				
Collect specimen in sterile specimen collection cup or other sterile body fluid collection container <u>without additives</u> . The following are typical Hematology tests:				
Fluid Analysis, Cell Count With Differential (FLUID)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Crystals (FLCRY)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
<b>Chemistry Studies:</b>				
Collect specimen in sterile specimen collection cup or other sterile body fluid collection container <u>without additives</u> . The following are typical Chemistry tests:				
Fluid Albumin (FLALB)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Amylase (FLAMY)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Cholesterol (CHOLF)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	<b>Test is a send out to a reference laboratory.</b> Please indicate specimen type.
Fluid Glucose (FLGLU)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Lactate (FLLACT)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Lactate Dehydrogenase (FLLDH)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid pH (FLPH)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Specific Gravity (FLSG)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.
Fluid Total Protein (FLTP)	≥ 1 mL	ASAP ≤ 1 hour	25 °C	Please indicate specimen type.



**Abbott PCx Glucometer**

**Testing to be performed by a qualified operator!**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Point of Care: Glucose test	Whole blood finger stick	N / A	N / A	See “ <b>Note 1</b> ” this page for test interpretations.

**Note 1 – Test Interpretations:**

- 1) Testing to be performed using Abbott PCX Glucometer (by a qualified operator).
- 2) Unique user ID number to be used by each qualified operator.
- 3) 9-digit patient account number is to be entered for patient identification.
- 4) Patient values below 45 and above 450 should be handled as follows:
  - a) Repeat test.
  - b) Notify supervisor/MD.
  - c) Enter comment code in meter.
  - d) Order lab glucose test.
- 5) If questions or problems arise, please notify the “Point of Care Coordinator” in the Clinical Laboratory at 468-6970.



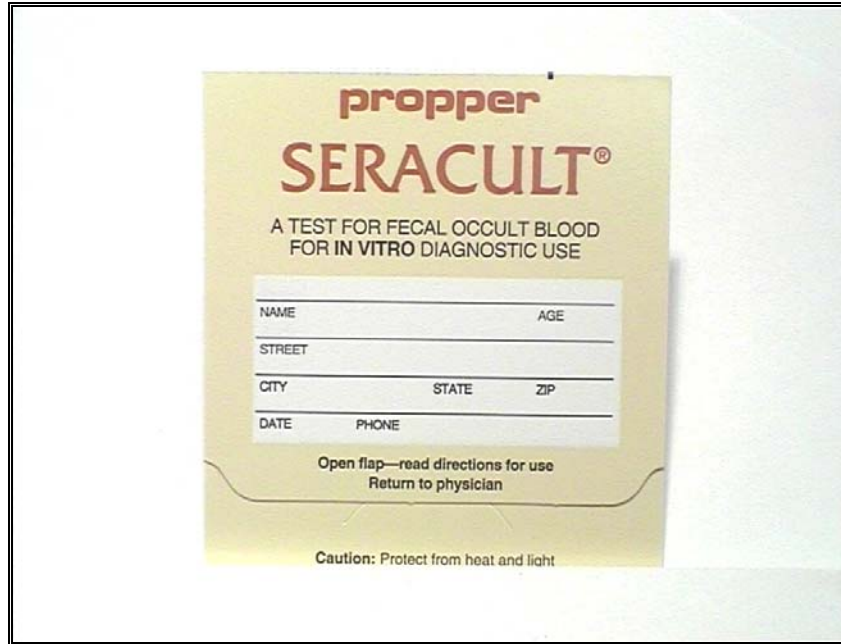
**10UA Urinalysis Chemstrip**

**Testing to be performed by a qualified operator!**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Point of Care: Urinalysis Dipstick	≥ 1 mL urine, sterile collection cup	N / A	N / A	See “ <b>Note 1</b> ” this page for test interpretations. (1)

**Note 1 – Test Interpretations:**

- 1) Quality Controls (QC’s) levels 1 and 2 should be done on each day of patient testing.
- 2) Test to be performed by a qualified operator.
- 3) When interpreting visual test results, all values must be read at appropriate time intervals as listed on the test strip container.
- 4) Color changes after 2 minutes and that occur along the edge of the test strip are not of clinical value and should be ignored.



**SERACULT Test Card for Fecal Occult Blood**

**Testing to be performed by a qualified operator!**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Point of Care: Occult Blood	Stool, SERACULT card	N / A	N / A	Fresh specimen is to be smeared onto the Guaiaac Cards. Protect form heat and light. Avoid collection of stool from toilet bowl water which may cause false positives. See “ <b>Note 1</b> ”for precautions. See “ <b>Note 2</b> ” this page for test interpretations. (1)

**Note 1 – Precautions:**

Patient should avoid oral supplements such as vitamin C and iron, red meat diets and peroxidase-rich vegetable (turnips, horseradish, artichokes, mushrooms, radishes, broccoli, bean sprouts, cauliflower, apples, oranges, bananas, cantaloupes and other melons, grapes) for 3-5 days before collection to decrease the incidence of false-positives. Alcohol and aspirin, especially together, and other gastric irritants should also be avoided.

**Note 2 – Test Interpretations:**

- 1) SERACULT test results must be read between 30 to 60 seconds after application of the developer.
- 2) Development of blue color in the SERACULT control area confirms performance of both slide and developer reagents



**Urine hCG (Pregnancy) Test**

**Testing to be performed by a qualified operator!**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Point of Care: Beta-Human Chorionic Gonadotropin (β-hCG), Urine Pregnancy Test, Qualitative	≥ 1 mL urine, sterile collection cup	N / A	N / A	First voided morning specimen preferred (most concentrated). See “ <b>Note 1</b> ” this page for test interpretations. (1)

**Note 1 – Test Interpretations:**

Proper results are obtained after:

- a) Addition of 4 drops of urine
- b) A color line appears in the control window
- c) After 4 minutes and no later than 30 minutes.



**10% Neutral Buffered Formalin v/v  
(Various Sizes & Volumes)**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Pathology (PATH)	Tissue, organs, limbs or other anatomical parts	ASAP	25 °C	<p><b>Do not allow specimen(s) to dry.</b> Place specimen for pathology studies in 10% neutral buffered formalin v/v. Typical sizes are 15 mL, 60 mL, 480 mL, 1200 mL and 2 gallon containers. Do not force large specimens into a small container. Formalin must surround the specimen for proper fixation.</p> <p>If specimen will not fit into available containers, please securely double bag using biohazard bags, label the specimen with patient's full name, medical record number, source of specimen, and transport to the laboratory ASAP.</p> <p>For multiple specimens ordered on same day, from same procedure, the specimens should be labeled A, B, C, etc... with patients full name medical record number, and identify the source of each specimen on the container, and not the lid.</p> <p>Use a separate container for each separately identified specimen.</p> <p><b>Caution should be used when handling 10% formalin.</b> The cover of the container should always</p>

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
-----------	----------------	----------------------	---------------------	----------

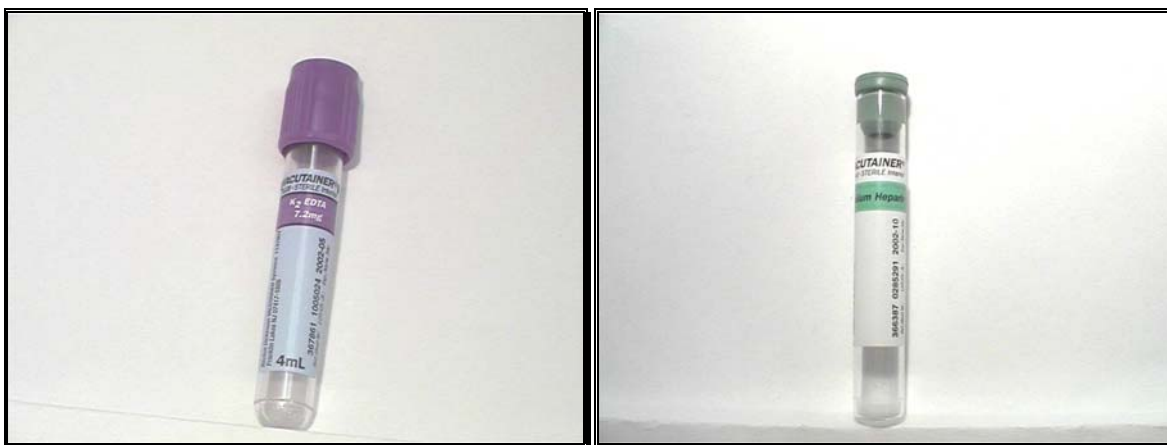
Pathology (Cont.)

remain closed except when transferring specimen into container in a few seconds time. Extensive inhalation of vapors may pose a carcinogenic risk. Avoid splashing to prevent skin exposure, which may have toxic effects.  
**Causes for rejection include:**  
specimen not labeled.

# Body Fluids & Fine Needle Aspirates (FNA)

Test Name	Device/ volume	Transport time (Max)	Transport temp (°C)	Comments
<b>Cytology Studies</b> Body Fluids (CYTFL)	≥ 1 mL	ASAP	4 °C	Collect fluid in sterile specimen collection cup or other sterile body fluid container without additives. Label the specimen container, not the lid, with patient's full name, medical record number, and source of fluid. <b>Do not transport syringes as a specimen container.</b> When possible, transport the specimen to the laboratory on ice and place in refrigerator if not immediately analyzed. <b>After ordering tests in the Order Communication (Keane system), please submit specimen with manual requisition form and complete parts I and II. See example, page 63.</b> <b>Causes for rejection include:</b> specimen not labeled. <b>Typical sources include:</b> amniotic fluid; breast cyst aspiration; breast solid mass aspiration; breast secretion; bronchial brushings & washings; cerebrospinal fluid; effusions; endometrial washings; esophageal brushings & washings; gastric brushings & washings; lymph node; paracentesis; pericardial fluid; skin lesions; sputum; synovial fluid; thoracentesis, urine. (2)
Fine Needle Aspirates, FNA (CYTFL)	Aspirate onto four slides	ASAP	25 °C	Place specimen onto a minimum of four white frosted end slides. Two slides should be fixed and two air dried. <b>All slides must be labeled with the following:</b> patient's full name, medical record number, and source of specimen. Also indicate which slides are fixed and which are air dried. <b>After ordering tests in the Order Communication (Keane system), please submit specimen with manual requisition form and complete parts I and II. See example, page 63.</b> <b>Causes for rejection include:</b> specimen slides not labeled correctly. (1) <b>Test is a send out to a reference laboratory.</b>

# Bone Marrow Studies



**BD Vacutainer Lavender Top 4.0 mL  
Plastic Tube - 7.2 mg K<sub>2</sub> EDTA**

**AND / OR**

**BD Vacutainer Green Top 3.0 ml  
Glass Tube - Sodium Heparin  
(Collection tube available in laboratory)**

**Bone Marrow Test(s):**

**Transport medium used:**

**Number to submit:**

Bone Marrow Biopsy, Touch prep (BMI)	Seven slides are prepared at patient's bedside.	7
Bone Marrow Aspirate (BONEM)	BD Vacutainer Lavender Top 4.0 mL Plastic Tube; 7.2 mg K <sub>2</sub> EDTA.	1
Bone Marrow Smear, Stain (BONES)	Seven slides are prepared in the laboratory.	7
Complete Blood Count (CBC)	BD Vacutainer Lavender Top 4.0 mL Plastic Tube; 7.2 mg K <sub>2</sub> EDTA	1

**Other test(s) that may be ordered on Bone Marrow Aspirate includes:**

Cytogenetics "Chromosome Analysis, Banded, Hematological Disorders"	BD Vacutainer Green Top 3.0 ml Glass Tube; Sodium Heparin	1
Flow Cytometry Studies, "Leukemia & Lymphoma Evaluation"	BD Vacutainer Green Top 3.0 ml Glass Tube; Sodium Heparin	1

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Complete Blood Count (CBC)	4.0 mL	ASAP ≤ 2 hours	25 °C	Mix specimen 10 times by gentle inversion. <b>All tubes must be labeled with:</b> patient's full name and medical record number. <b>Causes for rejection include:</b> wrong tube, clotted specimen, hemolyzed specimen, or dilution of blood with I.V. fluid. (1)

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Bone Marrow Biopsy, Touch prep (BMI)	Bone Marrow and 7 slides	ASAP	25 °C	Seven slides are prepared at patient bedside using the bone specimen. Four slides stained and three slides unstained. <b>All slides must be labeled with:</b> patient's full name and medical record number. Once slides are prepared, place bone specimen in 10% formalin and indicate the time bone specimen was placed in container. <b>Causes for rejection include:</b> Incorrect labeling.
Bone Marrow Aspirate (BONEM)	4.0 mL / 2.0 mL (minimum)	ASAP	25 °C	Bone Marrow Aspirate specimen is placed in 4.0 mL EDTA lavender top tube. <b>All tubes must be labeled with:</b> patient's full name and medical record number. In the laboratory, a portion of the aspirate is filtered, rinsed with 10% formalin and submitted for cytology studies
Bone Marrow Smear, Stain (BONES)	7 slides	ASAP	25 °C	Seven slides are prepared in the laboratory using the Bone Marrow Aspirate from EDTA specimen. Four slides stained and three slides unstained. <b>All slides must be labeled with:</b> patient's full name and medical record number. <b>Causes for rejection include:</b> Incorrect labeling.
Cytogenetics "Chromosome Analysis, Banded, Hematological Disorders"	3.0 mL	ASAP	25 °C	Bone Marrow Aspirate is placed in a 3.0 mL green top <b>Sodium Heparin</b> tube, provided by lab. Do not freeze or refrigerate specimen. Bone core material may be submitted if bone marrow aspirate is not successful. <b>Test is a send out to a reference laboratory. (2)</b>
Flow Cytometry Studies "Leukemia & Lymphoma Evaluation"	3.0 mL	ASAP	25 °C	Bone Marrow Aspirate is placed in a 3.0 mL green top <b>Sodium Heparin</b> tube, provided by lab. Avoid temperatures over 30 °C. <b>Test is a send out to a reference laboratory. (2)</b>



**Pap Test Kit**

<b>Test Name</b>	<b>Device/ volume</b>	<b>Transport time (Max)</b>	<b>Transport temp (°C)</b>	<b>Comments</b>
Pap Smear	Pap Kit; ectocervix & endocervix, or vaginal cuff	ASAP	25 °C	<p><b>Slide must be labeled with:</b> patient's full name and medical record number. Label backside of slide case with patient's registration stickers.</p> <p><b>Specimen must be submitted with manual requisition form. Parts I and III must be completed. See examples, page 63 and 63a.</b></p> <p><b>Causes for rejection include: slides not labeled properly, information on manual requisition form not complete, no reason given if LMP is &gt; 1 month.</b></p> <p><b>Test is a send out to a reference laboratory.</b></p>

Example Form

San Joaquin General Hospital  
500 W. Hospital Road  
French Camp, CA 95231 209-468-6073  
Kenneth K. Wachi, M.D. and Associates  
Medical Directors

**SURGICAL PATHOLOGY/PAP SMEAR REQUISITION FORM**

Part I

Patient Name \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Med. Rec. No. \_\_\_\_\_ Acct. No. \_\_\_\_\_ Ward/Clinic \_\_\_\_\_

Date of Birth \_\_\_\_\_ Sex \_\_\_\_\_

Requesting Physician(s) \_\_\_\_\_

Part II

**Pathology/Cytology Fluid/FNA Specimen/Bone Marrow Specimen Request**

Specimen site: \_\_\_\_\_

Specimen source: \_\_\_\_\_

Pre-op Dx: \_\_\_\_\_

Post-op Dx: \_\_\_\_\_

# of specimens submitted: \_\_\_\_\_ Explain each: A= \_\_\_\_\_

Part III

**PAP SMEAR REQUEST: ALL QUESTIONS MUST BE ANSWERED**

LMP      /      /      Specimen Source: \_\_\_\_\_

Pregnant: Yes/No Previous tx Yes/No If yes, what procedure: \_\_\_\_\_

Postmenopausal Yes/No Hormones: Yes/No If yes, what kind: \_\_\_\_\_

Other Clinical Information: \_\_\_\_\_

**FOR PATHOLOGY USE ONLY--DO NOT WRITE BELOW THIS LINE**

0023 Sur Pa Gr	0064 Frozen Section	0056 Fl Cyt No CB
0106 Sur Pa G&M ID	0098 Ea Addl Fr Sec	0189 Fl Cyt CB
0114 Sur Pa G&M De Sm	0213 Consult Surg	0221 Decal Ea Spec
0122 Sur Pa G&M De Lg	0163 Sp Stain Gr 1	
0130 Sur Pa G&M De Com	0171 Sp Stain Gr 2	
0148 Sur Pa G&M De Ex		

**Pap Smear Codes**

40700361

40700379

Revised 2/11/00

Example Form.

San Joaquin General Hospital  
500 W. Hospital Road  
French Camp, CA 95231 209-468-6073  
Kenneth K. Wachi, M.D. and Associates  
Medical Directors

**SURGICAL PATHOLOGY/PAP SMEAR REQUISITION FORM**

Patient Name One Jane Date 01/02/02 Time \_\_\_\_\_

Med. Rec. No. 987467 Acct. No. 601669358 Ward/Clinic PMC

Date of Birth 10/14/1936 Sex F

Requesting Physician(s) Dr. Lee

**Pathology/Cytology Fluid/FNA Specimen/Bone Marrow Specimen Request**

Specimen site: \_\_\_\_\_

Specimen source: \_\_\_\_\_

Pre-op Dx: \_\_\_\_\_

Post-op Dx: \_\_\_\_\_

# of specimens submitted: \_\_\_\_\_ Explain each: A= \_\_\_\_\_

**PAP SMEAR REQUEST: ALL QUESTIONS MUST BE ANSWERED**

LMP 10/09/02 Specimen Source: vag cuff

Pregnant: Yes/No  Previous tx  If yes, what procedure: \_\_\_\_\_

Postmenopausal  Hormones:  If yes, what kind: \_\_\_\_\_

\* Other Clinical Information: Pt is taking Estrogen and had an hysterectomy in 1982.

**FOR PATHOLOGY USE ONLY--DO NOT WRITE BELOW THIS LINE**

- |                        |                     |                    |
|------------------------|---------------------|--------------------|
| 0023 Sur Pa Gr         | 0064 Frozen Section | 0056 Fl Cyt No CB  |
| 0106 Sur Pa G&M ID     | 0098 Ea Addl Fr Sec | 0189 Fl Cyt CB     |
| 0114 Sur Pa G&M De Sm  | 0213 Consult Surg   | 0221 Decal Ea Spec |
| 0122 Sur Pa G&M De Lg  | 0163 Sp Stain Gr 1  |                    |
| 0130 Sur Pa G&M De Com | 0171 Sp Stain Gr 2  |                    |
| 0148 Sur Pa G&M De Ex  |                     |                    |

**Pap Smear Codes**

40700361

40700379

Revised 2/11/00

\* If pt. had an Hysto; source should be an vag. cuff. Otherwise the source should be cervix.

# Sendout Tests to Reference Laboratories

AB = Antibody; plsm = plasma; rt = room temperature; srm = serum; sst = serum separator tube; WB = whole blood

TEST DESCRIPTION / COLOR TUBE or DEVICE	PROCESSING (lab use only)	OC PNEUMONICS	TEST CODE (lab use only)
acetylcholine receptor AB - gold top	2ml srm rt	ACTRE	TC = 206
adenovirus AB acute and con - gold top	1ml srm rt	ADEN	TC = 6743
adrenocorticotrophic hormone - lavender top	2ml frozen EDTA plsm	ACTH	TC = 211
alcohol "isopropanol" - 1 full gray top {betadine swab}	5ml fluor-oxal WB refrig	ALISO	TC = 578
alcohol methyl - 1 full grey top	5ml fluor-oxal whole blood	ALCME	TC = 643
aldolase - gold top	2ml frozen srm	ALDO	TC = 227
aldosterone - 24 hr urine	15ml frozen urine / acidify 3-5 pH	ALDOU	TC = 229
aldosterone - gold or green top	1ml frozen srm / plsm	ALDOS	TC = 230
alk phos isoenzymes - 10 ml red top	3ml frozen srm	ALKIS	TC = 231
alpha 1 antitrypson - gold top	1ml srm rt	AATRP	TC = 235
alpha-1-antitrypsin phenotype	1ml srm refrig	ATRYP	TC = 853
alpha-2-macroglobulin - gold top	1ml srm	AMACR	TC = 228
aluminum - 1 royal blue hep plsm tube	4ml heparin plsm rt	ALUM	TC = 4695
amikacin peak - 4ml red top	1ml srm	AMIP	TC = 236
amikacin trough - 4ml red top	1ml srm	AMIT	TC = 8583
amino acid quant - lithium hep - green top	2 ml frozen heparin plsm	AAQTP	TC = 767
amino acid quantitative - 24 hr urine	ph <2 rejected / both frozen	AAQTU	TC = 36183
amino acid urine screen - 24 hr urine	acidify 10 ml to 3-5 pH w/ 6N HCl	AASCU	TC = 684
aminolevulinic acid - 24 hr urine	10ml urine no light / acidify	ALA	TC = 219
amiodarone (desethylamiodarone) - red top	2ml frozen srm	AMIOD	TC = 5258
amitriptyline { elavil } - 10 ml red top no sst	3ml srm rt	AMITR	TC = 423
amoebic antibodies - gold	1ml srm	AMANT	TC = 632
amoxapine - 10ml red top no sst	5ml srm rt	AMOX	TC = 4412
ampicillin - red top no sst	1 ml frozen srm	AMPI	TC = 35157
amylase isoenzymes	2ml frozen srm	AMYIS	TC = 845
androstenedione - 10ml red top	2ml frozen srm	ANDST	TC = 251
angiotension 1 converting enzyme - gold top	1ml srm rt	ACE	TC = 683
anti phospholipid AB - red top	1ml srm rt	APHAB	TC = 36189
anti smooth muscle AB - gold top	1ml srm rt	ANSMO	TC = 263
anticentromere AB - gold top	1srm rt	ANCE	TC = 4586
antidiuretic hormone { vasopressin } - 2 lavender	6ml frozen EDTA plsm	ADH	TC = 252
anti-DNA AB single strand - gold top	1ml srm rt	ADNA	TC = 419
anti-gliadin AB panel - gold top	1 ml refrig srm	GLIA	TC = 8889
anti-glomerular basement membrane AB - gold top	1ml srm rt	AGBMA	TC = 257
antimicrosomal AB - gold top	1ml srm rt	ANTMI	TC = 4961

AB = Antibody; plsm = plasma; rt = room temperature; srm = serum; sst = serum separator tube; WB = whole blood

TEST DESCRIPTION / COLOR TUBE or DEVICE	PROCESSING (lab use only)	OC PNEUMONICS	TEST CODE (lab use only)
antimitochondrial AB - gold top	1ml ser	AMITO	TC = 259
antimyocardial AB - gold top	2ml srm rt	AMYOA	TC = 261
anti-neutrophil cytoplasmic AB - gold top	2ml srm refrig + P&C	NCA	TC = 36733
antiparietal cell AB - gold top	1ml srm rt	ANTPA	TC = 262
antiplatelet cell AB - gold top	1ml srm rt	APLTA	TC = 5341
antiscleroderma AB { Scl - 70 } - gold top	2ml srm rt	ANSC	TC = 4942
antistreptococcal AB - gold top	1ml srm rt	ANSD	TC = 256
antistriated / skeletal muscle AB - gold top	1ml srm rt	ANST	TC = 266
antithrombin 3 activity - blue top	1ml frozen citrate plsm	ATIII	TC = 216
antithyroglobulin AB - gold top	1ml srm rt	ANTHG	TC = 267
apolipoprotein evaluation - gold top	2ml srm rt fasting specimen	APO	TC = 7018
arbovirus AB - CSF	2ml CSF ambient	CSFAR	TC = 3621
arbovirus AB panel - gold top	1ml srm rt	ARBOS	TC = 961
arsenic - royal blue hep top tube	7ml heparin or EDTA plsm	ARSNC	TC = 269
arsenic - urine quant 24 hr add 20ml 6N hcl at start	50ml urine with 20ml 6N HCl	ARSU	TC = 270
aspergillus AB	1ml srm rt	ASPER	TC = 849
ativan (Lorazepam) - random urine	4ml urine refrig	UATIV	TC = 30962
ativan / aventyl { nortriptyline } - 10ml red top	3ml srm / no sst	ATIVA	TC = 272
barbiturates urine GC/MS - 50ml urine	50ml urine rt	BARB	TC = 6051
benzene (Phenol) - full grey top	2ml fluor-oxal WB rt	BENZ	TC = 3353
benztropine - lavender top	4ml EDTA / heparin plsm / srm no sst	BEZTR	TC = 6055
beta-2-microglobulin - gold top	1ml srm rt	B2M	TC = 852
bile acids - 10ml red top tube	7ml frozen srm	BIAC	TC = 4668
blastomyces AB - gold top	1ml srm refrig	BLTAB	TC = 932
bordetella pertussis AB - gold top	1 ml refer srm	BORDT	TC = 37369
bromide - 10ml red top	3ml srm rt	BROM	TC = 291
brucella abortus AB - gold top	2ml srm rt	BAAB	TC = 982
C1 esterase - gold top	1ml frozen srm	CIEST	TC = 298
cadmium - royal blue top	1ml EDTA whole blood	CAD	TC = 299
cadmium urine - random urine	15 ml random urine rt	CADU	TC = 672
caffine - red top	1ml srm rt no sst	CAFS	TC = 305
caffine urine - random urine	10 ml urine ambient	CAFU	TC = 6069
calcitonin - gold top	2ml frozen srm EDTA/heparin plsm OK	CALC	TC = 301
calcium ionized - gold ( do not uncap )	1ml srm rt do not uncap	CAION	TC = 306
california encephalitis AB -	SEE ARBOVIRUS	CAENC	
cancer antigen 125 (centocor) - gold top	1ml srm rt	CA125	TC = 29256
cancer antigen 15-3 - gold top	1ml srm rt	CA153	TC = 5819
candida precipitins AB - gold top	1ml srm rt	CAND	TC = 939
carbohydrate antigen 19-9 - gold top	1ml frozen srm	CA199	TC = 4698
carcinoembryonic antigen - gold top	1ml srm rt	CEA	TC = 978

AB = Antibody; plsm = plasma; rt = room temperature; srm = serum; sst = serum separator tube; WB = whole blood

TEST DESCRIPTION / COLOR TUBE or DEVICE	PROCESSING (lab use only)	OC PNEUMONICS	TEST CODE (lab use only)
cardiolipin antibodies - gold top	2ml frozen srm	CABS	TC = 36189
cardiolipin IgA AB - gold top	1ml srm rt	CARDA	TC = 4661
cardiolipin IgG AB - gold top	1ml srm rt	CARDG	TC = 4662
cardiolipin IgM AB - gold top	1ml srm rt	CARDM	TC = 4663
carnitine - gold top	1ml frozen srm	CARNT	TC = 5357
carotene - 10ml red top	5ml srm ambient / no light	CARO	TC = 311
catecholamines fract - 24 hr urine add 25ml 6N hcl start	30ml frozen urine	CFU	TC = 318
catecholamines fract / total plsm - 2 green tops	5ml frozen heparin plsm / see index	CFP	TC = 314
CD4 / Tcell subset - weekends only - lav top	send in tube rt / if no PH lab	FLOW	TC = 8360
ceruloplasmin - gold top	1ml srm rt	CERU	TC = 326
chloramphenicol - red top no sst	2ml srm ambient	CHLM	TC = 4968
chlordiazepoxide { librium } - 10ml red top no sst	3ml srm rt / no sst	CHLOZ	TC = 603
chloride - feces	10 grms feces / collect refrig / ship frozen	CLS	TC = 8831
chlorpromazine { thorazine } - 10ml red top tube	4ml srm rt / no sst	CHLOP	TC = 882
chlorpromazine urine - 1 full urine cup	50ml ambient urine	CHLOU	TC = 6261
cholinesterase , RBC - 2 lavender tops	2ml heparin/EDTA plsm send RBC's	CHRBC	TC = 337
cholinesterase panel - 2 full lavenders	1:5ml EDTA WB / 1:5 EDTA plsm	CHOPN	TC = 338
cholinesterase, pseudo plsm - 2 green tops	4ml heparin/EDTA plsm ambient	CHOP	TC = 335
chromium - royal blue top tube	7ml heparin whole blood / srm	CHROM	TC = 6085
chromium urine - 10 ml urine / acid wash cont.	get acid wash cont from quest	CHRMU	TC = 332
citric acid urine - 24hr urine/ 10 g boric acid start	5ml urine ambient	CITAU	TC = 4616
clonazepam - 10ml red top	3 ml frozen srm / no sst	CLON	TC = 340
clozapine - red top tube	2ml srm / no sst	CLOZA	TC = 1769
coccidioides AB (complement fixation) CSF	1ml frozen CSF	COCFX	TC = 5295
coccidioides AB (immunodiffusion) QL - red top	2ml frozen srm	COCID	TC = 908
coccidioides AB {cocci titer }(comp. fix.) - red top	2ml frozen srm	COCCI	TC = 906
cold hemaagglutin - 10ml red top no sst	3 ml srm rt	COLD	TC = 349
complement , total CH50 units - gold top	1ml frozen srm	CH50	TC = 618
complement C3 synovial fluid	0.5ml frozen synovial fluid	FLDC3	TC = 4675
complement C4 synovial fluid	0.5ml frozen synovial fluid	FLDC4	TC = 4677
complement component C2 - lavender top	2ml frozen EDTA plsm	C2	TC = 433
complement component C3 - gold top	1ml frozen srm	C3	TC = 351
complement component C4 - gold top	1ml frozen srm	C4	TC = 353
complement component C5 - lavender top	1ml frozen EDTA plsm	C5	TC = 354
complement component C6 - lavender top	1ml frozen EDTA plsm	C6	TC = 464
copper - royal blue top	2ml plsm / srm no sst	COPS	TC = 363
copper urine - 24 hr urine / 20ml 6N hcl start	25ml ambient urine	COPU	TC= 365
copro"porphyrins" fractionated urine -24hr urine	15ml urine refer send immediate	COPRN	TC = 729
cortisol urine, 24 hr urine	75 ml ambient urine	CORTU	TC = 370
cortisol, AM cort - gold top	1 ml srm rt	CORA	TC = 4212

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cortisol, PM cort - gold top	1 ml srm rt	CORP	TC = 4213
cortisol, total - red top	1ml srm rt	CORT	TC = 367
coxsackie A virus AB (types 2,4,7,9,10,16) - gold top	2ml srm refrig	COXSA	TC = 37477
coxsackie B virus AB (types 1-6) - gold top	2ml srm refrig	COXSB	TC = 7656
C-Peptide - gold ( fasting )	2ml frozen srm	CPEP	TC= 327
cryofibrinogen - blue top	3ml WB rt	CRYOF	TC = 376
cryoglobulin - full red top	10ml srm - clot @ 37 °C (1hr) - ship rt	CRYOG	TC = 36561
cyanide - 1 full gray top tube	4ml fluor-oxal WB refrig / send STAT	CYN	TC = 400
cyclosporin - lavender with last dose	to Health Care Clinical Lab, with last dose	CYCLO	Manual Form
cystic fibrosis DNA - ACD (yellow top)	5ml WB rt	CYSFI	TC = 10021
cysticercus AB - red top	1ml srm frozen	CYSAB	TC = 34173
cystine urine - 24hr urine	25ml frozen urine	CYST	TC = 401
cytomegalovirus, acute/conv - gold top	1ml srm rt	CMVI	TC = 6660
cytomegalovirus, IgG AB - gold top	1ml srm rt	CMVGG	TC = 403
cytomegalovirus, IgM AB - gold top	1ml srm rt	CMVGM	TC = 8503
dehydroepiandrosterone (unconjugated) - gold top	1ml frozen srm/EDTA plsm OK	DHEA	TC = 410
dehydroepiandrosterone sulfate - gold top	1ml srm rt	DHEAS	TC = 402
Delta O.D. 450 - amniotic fluid	7ml frozen protect from light	DELTA	TC = 37241
desipramine { norpramin } - 10 ml red top / no sst	3ml ser rt	DESIP	TC = 412
dexamethasone supp.	2 ml frozen srm	DST	TC = 29391
diazepam { Valium } - 10ml red top tube	3ml srm / no sst	DIAZE	TC = 913
digitoxin - red top	1ml srm rt	DIGIT	TC = 417
dihydrotestosterone 5 alpha - 10ml red top tube	3ml srm / 1 EDTA plsm ambient	DHT	TC = 204
diphenhydramine (Benadryl) - urine	10ml urine rt	DIPH	TC = 6113
disopyramide { Norpace } - red top no sst	1ml srm rt / no sst	DISOP	TC = 416
doxepin { Sinequan } - 10ml red top no sst	3 ml ser rt / no sst	DOXEP	TC = 826
echinococcus AB - gold top	1 ml srm rt	ECHIN	TC = 2742
echovirus AB ( types 4, 9, 11, 30 ) - gold top	1 ml srm rt	ECHOV	TC = 699
endomysial IgA - red top	1ml srm refrig	ENDOA	TC = 8821
Entamoeba hist. AB - red top	1ml srm frozen	ENTAM	TC = 30262
epstien - barr virus AB - gold top	2 ml srm rt	EBVAB	TC = 6421
erythropoietin - gold top	1 ml srm rt	ERYTH	TC = 427
estradiol - gold top with sex + age of patient	1 ml srm rt / age + sex	EST	TC = 429
estrogen - red top	1ml srm frozen	ESTRO	TC = 439
estrone - 10ml red top with sex + age of patient	7 ml frozen srm / age + sex	ESTRN	TC = 436
ethchorvynol - red top	3ml srm rt	ETHCH	TC = 722
ethosuximide { Zarontin } - 10ml red top no sst	3 ml srm rt / no sst	ETHOS	TC = 214
ethylene glycol - 10ml red top	2 ml srm rt	ETHGL	TC = 801
factor V - Leiden Profile gene mutation - lav top	4 ml whole blood rt	FAC5	TC = 22722
factor VII activity coag. - blue top	2 ml frozen citrated plsm	FAC7	TC = 346

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factor VIII { Von Willebrand } - 2 blue tops	3 1ml frozen citrated plsm	FAC8	TC = 7161
factor X activity coagulation - blue top	2 ml frozen citrated plsm	FAC10	TC = 359
factor XII activity coag. - blue top	2 ml frozen citrated plsm	FAC12	TC = 362
factor XIII activity coag. - blue top	2 ml frozen citrated plsm	FAC13	TC = 364
fatty acids (free) - red top	2ml srm frozen	ESFAT	TC = 449
fatty acids , free - lavender or gray top	1ml frozen EDTA / fluor-oxal	FFA	TC = 449
febrile agglutinins - gold top	1ml ser rt	FEAGG	TC = 450
fecal fat qualitative - feces	2 grms refrig feces	FFQL	TC = 3967
fecal fat quant {lipids} - 20 grms feces	20 grms frozen feces	FFT	TC = 455
fetal lung maturity - amniotic fluid	1ml frozen	FETLM	TC = 36208
flecainide { Tambocor } - 10ml red top no sst	2 ml srm rt / no sst	FELCA	TC = 5309
fluorescent Treponemal AB absp. - gold top	1 ml srm rt	FTAAB	TC = 4112
fluoride - gold top	4ml srm rt	FLUO	TC = 949
flurazepam { Dalmane } - 10ml red top no sst	4ml srm rt / no sst	FLUR	TC = 405
formaldehyde - 1 full green top	5 ml heparin whole blood	FORM	TC = 724
fragile X chrom analysis - 2 lavender top	10 ml whole blood rt	FRAGX	TC = 2936
free erythrocyte Protoporphyrin - lav or green top	do not transfer tube / WB rt	FEP	TC = 762
fructosamine - red top tube	1 ml frozen srm - refrig	FRUCT	TC = 8340
gabapentin { Neurontin } - red or lav top	2 ml srm or EDTA plsm rt	GABA	TC = 3557
galactosemia screen - sodium heparin tube	1ml WB rt	GALSC	TC = 476
gastric analysis - 10ml gastric fluid	10 ml gastric fluid - refrig	GAST	TC = 472
gastrin - gold top / fasting specimen	1 ml frozen srm	GASTR	TC = 478
glucagon - lavender top / sep. + frz immediately	2 ml frozen EDTA plsm	GLUCA	TC = 519
glucose 6-phosphate dehydrogenase (quali) - lav top	1 ml EDTA whole blood rt	G6PQL	TC = 4987
glucose 6-phosphate dehydrogenase (quant) - lav top	1 ml EDTA whole blood rt	G6PD	TC = 500
glutethimide { Doriden } - 10ml red top no sst	4 ml srm rt / no sst	GLUT	TC = 422
gold - 10ml red top tube	4 ml srm rt	GOLDS	TC = 8827
gold urine - 4ml random urine	4ml random urine refrig	GOLDU	TC = 494
H pylori IgG, Qualitative - red top	1ml srm freeze	HPYQL	TC = 29407
H pylori IgG, Quantitative - red top	1ml srm freeze	HPYQT	TC = 29408
haloperidol { Haldol } - 10ml red top no sst	5 ml srm rt / no sst	HALO	TC = 564
hemoglobin electrophoresis - lavender top	4 ml EDTA whole blood	HGBEL	TC = 517
histamine - green top / do not spin	1 ml frozen heparin whole blood	HISTB	TC = 525
histamine - urine - 24hr urine/ 30ml 6N HCl at start	15 ml from 24 refrig	HISTU	TC = 4946
histoplasma AB - gold top	1 ml srm rt	HISTO	TC = 938
HIV genotype - lavender top / clear top PPT	2 ml frozen plsm	HIVGEN	TC = 3494-9
hla A,B,C phenotype - full ACD yellow top	20 ml whole blood rt	HLABC	TC = 7305
hla b-27 antigen - 10ml ACD yellow top	ACD whole blood send tube rt	HLA27	TC = 528
homocysteine total - lavender top / separate in 2 hrs	2ml frozen EDTA plsm	HOMCY	TC = 31789
homocysteine, total - urine	5ml urine frozen	URHOM	TC = 26318

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homovanillic urine/ 24 hr / 25ml 6N HCl at start	10 ml urine refrig	HVA	TC = 530
human growth hormone - gold top	1 ml srm rt	HGH	TC = 521
hydroxyproline free - 24 hr urine	25 ml urine from 24 hr - refrig	HYDRO	TC = 685
IGF binding protein #3 - gold top	1 ml frozen srm	IGFBP	TC = 34458
imipramine { Tofranil } - 10ml red top no sst	3 ml srm rt / no sst	IMIPR	TC = 887
immunofixation - S - gold top	2 ml srm rt	IMIE	TC = 549
immunoglobulin A (IgA) - gold top	2 ml srm rt	IGA	TC = 539
immunoglobulin E (IgE) - gold top	1 ml srm rt	IGE	TC = 542
immunoglobulin G (IgG) - gold top	2 ml srm rt	IGG	TC = 543
immunoglobulin IgG - CSF	2ml CSF refrig	CSFIG	TC = 4448
immunoglobulin M (IgM) - gold top	1 ml srm rt	IGM	TC = 545
immunoglobulins IgA, IgG, IgM - gold top	1 ml srm rt	IEP	TC = 7083
inderal - { Propranolol } -10ml red top no sst	2 ml srm / no sst	INDER	TC = 553
influenza A AB - gold top	1 ml srm rt	INFLA	TC = 687
influenza B AB - gold top	1 ml srm rt	INFLB	TC = 4440
insulin - gold top / fasting specimen	1 ml frozen srm	INS	TC = 561
insulin AB - gold top	2 ml srm rt	INSAB	TC = 6702
intrinsic factor AB - red top tube	1 ml frozen srm	INFAC	TC = 568
lamotrigine - 10ml red top no sst	1 ml refrig srm	LAMOT	TC = 22060
legionella AB - gold top	2 ml srm rt	LEGIO	TC = 7642
legionella AG urine - random urine	1 ml random refrig urine	LEGIN	TC = 8856
leptospira AB - gold top	1 ml srm rt	LEPTO	TC = 983
luteinizing hormone - gold top	1 ml srm rt	LH	TC = 615
metanephrines - urine	10ml urine frozen	UMET	TC = 6016
methadone { Dolophine } - 10ml red top	3 ml srm rt / no sst	METH	TC = 620
methylmalonic acid - gold top	2 ml frozen srm	MMA	TC = 6414
neuronal nuclear AB (Anti-HU) - red top	1ml frozen srm / fasting preferred	HUAB	TC = 37053
parathyroid hormone C terminal - gold top	2 ml frozen srm	PTHCT	TC = 4101
parathyroid hormone intact - gold top	2 ml frozen srm	PTHIN	TC = 8837
porphyrines - urine	2ml urine / protect form light/ frozen	UPORF	TC = 36592
primidone { mysoline } - 10ml red top	2 ml srm rt / no sst	PRIM	TC = 751
procainamide - SEE NAPA	SEE NAPA	PROC	TC = 743
progesterone - gold top	2 ml srm rt	PROGE	TC = 745
prograf { Tacrilomas } - lavender top	3 ml frozen whole blood	PROGF	TC = 34482
prolactin - red top	1 ml srm rt	PROL	TC = 746
protein C activity - blue top	1 ml frozen citrated plsm	PROTC	TC = 1777
protein electrophoresis - 10ml red top	5 ml srm rt	PROTE	TC = 747
protein S activity - blue top	1 ml frozen citrated plsm	PROSA	TC = 1779
purkinje yo AB - red top	1ml srm frozen - fasting preferred	YOAB	TC = 37360
quetiapine (Seroquel) - red top	1ml srm rt	QUET	TC = 35299

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quinidine - red top no sst	1 ml srm rt / no sst	QUIN	TC = 766
renin activity - lavender top	2 ml frozen EDTA plsm	RENIN	TC = 787
rifampin - 10ml red top no sst	1 ml frozen srm	RIFAM	TC = 30304
scleroderma AB - gold top	1ml srm refrig	SCLER	TC = 4942
sex hormone binding globulin - gold top	2ml srm refrig	SHBG	TC = 30740
sjogren's AB ssa & ssb - gold top	1ml srm rt	SJOR	TC = 7832
sm & rnp AB - gold top	1ml srm rt	SMRNP	TC = 7448
sodium - feces (24hr)	10 grms feces / collect refrig / ship frozen	NAFEC	TC = 8833
stone analysis (calculus analysis) - Dry Stones	dry stones provide source rt	STONE	TC = 30260
streptococcus pneumoniae AG	1ml CSF / srm / urine refrig	STRAG	TC = 4460
sulfonylurea - 10ml red top	4ml srm rt	SULFO	TC = 6308
tay-sachs disease mutation analysis - royal blue top	5ml WB in EDTA rt	TAYSA	TC = 21502
teichoic acid AB - gold top	1ml srm rt	TEIAC	TC = 36568
testosterone Free , 10ml full red top	4 ml srm rt	TESTP	TC = 30741
testosterone Total , 10ml full red top	4 ml srm rt	TESTT	TC = 873
thallium - royal blue top	4ml WB in EDTA refrig	THALL	TC = 8830
thiocyanate - 10ml red top	3ml srm refrig	THIOC	TC = 879
thioridazine / mesoridazine - 10ml red top	4ml srm refrig	THIOR	TC = 23232
thyroglobulin (quant) - red top	3ml srm refrig	THYQT	TC = 30278
thyroglobulin AB - gold top	2ml srm frozen	THYAB	TC = 267
thyroid peroxidase AB - gold top	1 ml srm rt	TPA	TC = 5081
thyroid stimulating immunoglobulin - gold top	2ml srm rt	TSI	TC = 30551
transferrin - gold top	1 ml srm rt	TRANS	TC = 891
trazodone - 10ml red / lavender top	3ml srm / EDTA plsm	TRAZO	TC = 4732
tyrosine - gray top	2ml plsm frozen	TYROS	TC = 902
vitamin A (Retinol) 10ml red top / protect from light	2ml frozen srm / no light / fasting	VITA	TC = 921
vitamin B1 (Thiamine) - lav top / protect from light	3ml frozen plsm / no light	VITB1	TC = 922
vitamin C (Ascorbic Acid) - 10ml red top / protect from light	7ml frozen srm / no light / fasting	VITC	TC = 929
vitamin D (1,25 dihydroxy) - 10 ml red top	5ml frozen srm	VITD	TC = 4729
zinc - heparinized royal blue top	2ml hep plsm / separate in 2 hrs	ZINC	TC = 945
zinc urine - 24 hr urine w/ 30ml 6N HCl at start	25ml of 24 hr urine rt / total volume	UZINC	TC = 946

# References

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  - Glassy, E.F., MD, 1998. **Color Atlas of Hematology: An Illustrated Field Guide Based on Proficiency Testing**, College of American Pathologists, Northfield, Illinois.
    - Figure 3 – Peripheral blood smear of segmented neutrophil and normocytic/normochromic RBC's.
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    - Figure 5 – Cholesterol crystals in synovial fluid
    - Figure 1 – Triple phosphate crystals in urine
  - San Joaquin General Hospital Laboratory.
    - Figure 2 – Chemistry Department with Beckman Coulter Access (far left) analyzes Thyroid, Cardiac Ferritin and hCG tests; Beckman Coulter LX-20 (right forefront) analyzes general chemistry tests.
    - Figure 4 – Blood Bank Department with one unit of O type Rh positive blood.