

Specimen Handling and Transport

Overview

Carefully consider the information on this page when preparing and handling specimens. Specimens must be collected and transported properly to ensure the highest quality results.

Introduction

The quality of any laboratory test result is dependent on many variables, the first of which begins with you. Your care, skill, and knowledge when preparing the patient and specimen are essential to providing the highest quality standards for testing and services. The patient must first be properly prepared so that the best possible specimen can be collected. Next, the actual collection of the specimen must be completed. Then, the specimen should be properly processed, packaged and transported to the laboratory in a timely manner and under environmental conditions that will not compromise the integrity of the specimen. After all of these activities take place, a quality analysis can be performed. The specimen collection and handling process can be completed by you and your staff, or by referring your patient to a DLO Patient Service Center. Please contact the laboratory for clarifications, if needed, prior to specimen collection. Specific specimen requirements for each test are listed in the General Test listing section of the Directory of Services. Specimen requirements include information such as specimen volume collection and transport containers as well as transport temperature. If additional information is needed for interpreting test results or if there are specific instructions for patient preparation, they are listed along with specimen requirements.

It is critical that an adequate specimen volume is submitted for analysis. The volume requested in this directory is enough for initial analysis as well as for any confirmatory tests that must be performed. If an inadequate specimen is submitted, we may not be able to perform the initial test or required confirmatory procedures. If repeat or confirmatory tests cannot be performed, the report will indicate that the specimen quantity submitted was QNS (Quantity Not Sufficient) for additional testing.

When serum or plasma is to be submitted for analysis, it is good practice to collect a volume of blood that is 2 to 2.5 times the volume of serum or plasma needed for the test. As an example, if 4 mL of serum or plasma is needed, collect 8 to 10 mL of blood.

When an inappropriate specimen or unclear test request has been submitted, you will receive notification with instructions for resolving the problem.

Health and Safety Precautions

Specimens should be handled in a safe manner and according to applicable legal requirements or guidance. Information on safe specimen handling may be obtained from the US Occupational Safety and Health Administration (OSHA) and the Centers for Disease Control and Prevention (CDC). In handling human specimens, the goal is to protect health care workers from exposures to blood and to other potentially infectious body fluids.

Besides following other specimen preparation procedures included in the Directory of Services, customers should, before sending a specimen to DLO, ensure that no leakage or contamination is visible outside the specimen container, and that there are no needles or other sharps in the package that could cause injury or pathogenic exposure to anyone handling or opening the package and inner containers. DLO reserves the right to refuse to accept any transports that pose a safety hazard to its employees

Supplies

Certain supplies necessary to draw and submit specimens for analysis by DLO are provided to customers as part of our testing services. Type and quantity of items must correlate to the number of specimens submitted to DLO for testing.

Specimen collection devices supplied by DLO are to be used only for the collection of specimens for processing by DLO. Such supplies are not to be used to store or dispose of biological materials, including sharp instruments, or for any activity not connected with the collection of specimens for processing by DLO.

Patient Preparation

Many tests require that the patient be prepared in some specific way to ensure useful results. The best analytical techniques provide results that are only as meaningful as the quality of the specimen that has been submitted for analysis. Our goal is to provide you with the most useful diagnostic information possible. If you have questions about patient preparation for any test, please consult the General Test Listing section in the Directory of Services or call Client Services for further assistance.

Fasting Requirements

For the majority of tests performed on serum, plasma, or whole blood, a fast specimen is preferred. Non-fasting specimens often contain fat particles that can interfere with many analytical procedures.

Blood, Serum, and Plasma Specimens

Most blood specimens can be obtained using routine phlebotomy techniques; however, there are some exceptions. The use of a tourniquet can cause stress and is not recommended in some cases. Patients should be instructed not to clench their fist(s) just prior to or during the phlebotomy procedure as this may slightly alter some of the patient's laboratory results. The patient's posture, either sitting, standing, or lying down, or the time of day relative to the patient's sleep cycle can be important factors in some tests. Whenever specific issues of this nature are important, they will be listed as part of the specimen requirements or patient preparation for the individual tests in the General Test Listing section of the Directory of Services.

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Blood Specimen Collection

This chart lists the test code, test name and collection container of the commonly-ordered tests found on the standard DLO lab requisition form. Please note that some tests have special instructions. If you are collecting for one of the thousands of tests not listed, please refer to the **DLO Directory of Services**.

TEST CODE	TEST NAME	CONTAINER	TEST CODE	TEST NAME	CONTAINER
ORGAN / DISEASE PANELS			OTHER TESTS (cont.)		
34392	ELECTROLYTE PANEL (Na, K, Cl, CO2)	Red / Black	8293	DIRECT LDL	Red / Black
10256	HEPATIC FUNCTION PANEL (Alb, TBili, DBili, AP, AST, ALT, TP)	Red / Black	457	FERRITIN	Red / Black
10165*	BASIC METABOLIC PANEL w/eGFR* (Na, K, Ca, Cl, CO2, Glu, BUN, Cr)	Red / Black	466	FOLIC ACID	Red / Black
10231*	COMP METABOLIC PANEL w/eGFR* (Na, K, Cl, CO2, Glu, BUN, Cr, Ca, TP, Alb, TBili, AP, AST, ALT)	Red / Black	470	FSH	Red / Black
7600	LIPID PANEL (Fasting Specimen) (TChol, Trig, HDL, calc, LDL)	Red / Black	482	GGT	Red / Black
14852	LIPID PANEL W/REFLEX DLDL (TChol, Trig, HDL, calc, LDL or DLDL when Trig>400)	Red / Black	8477	GLUCOSE, GEST, SCR	Gray
20210	OBSTETRIC PANEL W/REFLEX (ABO/rh, Antibody Scr RBC w/reflex, CBC, RPR (DX) w/reflex confirm, HbsAg w/reflex confirm, Rubella IgG Ab)	Red / Black & 2 Lavender	484	GLUCOSE PLASMA	Gray
10306	HEPATITIS PANEL, ACUTE W/REFLEX (HbsAg w/reflex confirm, HC Ab, HA Ab IgM, HBcAb IgM)	Red / Black	483	GLUCOSE, SERUM (Glu)	Red / Black
HEMATOLOGY			8435	HCG, SERUM, QUAL	Red / Black
510	HEMOGLOBIN	Lavender	8396	HCG, SERUM, QUANT	Red / Black
509	HEMATOCRIT	Lavender	608	HDL	Red / Black
1759	CBC (H/H, RBC, Indices, WBC, PLT)	Lavender	496	HEMOGLOBIN A1C	Lavender
6399	CBC w/DIFF (H/H, RBC, Indices, WBC, PLT, DIFF)	Lavender	512	HEP A AB, IGM	Red / Black
8847	PT WITH INR	Light Blue	4848	HEP B CORE AB, IGM	Red / Black
763	PTT, ACTIVATED	Light Blue	499	HEP B SURFACE AB QUAL	Red / Black
OTHER TESTS			498	HEP B SURFACE AG W/REFLEX CONFIRM	Red / Black
7788	ABO GROUP & RH TYPE	Lavender	8472	HEP C VIRUS AB	Red / Black
223	ALBUMIN (Alb)	Red / Black	19728	HIV-1/HIV-2 SCR W/REFLEXES	Red / Black
234	ALKALINE PHOSPHATASE (AP)	Red / Black	7573	IRON (TOT), IBC % SAT	Red / Black
823	ALT (SGPT)	Red / Black	571	IRON, TOTAL	Red / Black
243	AMYLASE	Red / Black	593	LDH	Red / Black
38318	ANA W/REFLEX TITER	Red / Black	599	LEAD (B)	Green or Tan
795	ANTIBODY SCR, RBC W/REFLEX ID	Lavender	615	LH	Red / Black
822	AST (SGOT)	Red / Black	613	LITHIUM	Red
285	BILIRUBIN, DIRECT (DBili)	Red / Black	622	MAGNESIUM	Red / Black
287	BILIRUBIN, TOTAL (TBili)	Red / Black	713	PHENYTOIN	Red
4420	C-REACTIVE PROTEIN	Red / Black	718	PHYOSPHORUS	Red / Black
29256*	CA 125	Red / Black	733	POTASSIUM (K+)	Red / Black
303	CALCIUM (Ca)	Red / Black	745	PROGESTERONE	Red / Black
310	CARBON DIOXIDE (CO2)	Red / Black	746	PROLACTIN	Red / Black
10124	CARDIO CRP	Red / Black	754	PROTEIN, TOTAL (TP)	Red / Black
978*	CEA	Red / Black	5363	PSA, TOTAL	Red / Black
330	CHLORIDE (Cl)	Red / Black	4418	RHEUMATOID FACTOR	Red / Black
334	CHOLESTEROL, TOTAL (TChol)	Red / Black	799	RPR (MONITORING) W/REFLEX TITER	Red / Black
375	CREATININE (Cr) w/eGFR	Red / Black	36126	RPR (DX) W/REFLEX CONFIRM FTA	Red / Black
418	DIGOXIN	Red	802	RUBELLA IGG AB	Red / Black
			809	SED RATE BY MOD WEST	Lavender
			836	SODIUM (Na)	Red / Black
			873	TESTOSTERONE TOTAL MALE	Red
			15983	TESTOSTERONE TOTAL WOMEN / PEDIATRICS	Red
			896	TRIGLYCERIDES (Trig)	Red / Black
			899	TSH	Red / Black
			36127	TSH W/REFLEX T-4, FREE	Red / Black
			859	T-3, TOTAL	Red / Black
			861	T-3 UPTAKE	Red / Black
			867	T-4 (THYROXINE), TOTAL	Red / Black
			866	T-4 (THYROXINE), FREE	Red / Black
			294	UREA NITROGEN (BUN)	Red / Black
			905	URIC ACID	Red / Black
			916	VALPROIC ACID	Red
			7065*	VITAMIN B12/FOLIC ACID	Red / Black
			927*	VITAMIN B12	Red / Black
			*Refrigerated Specimen		
			The test codes and tests found in this chart are for informational purposes only. For more detailed information regarding DLO tests and test collection information, please refer to the DLO Directory of Services.		

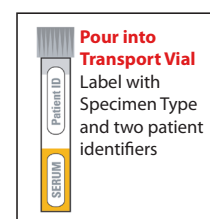
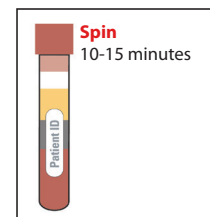
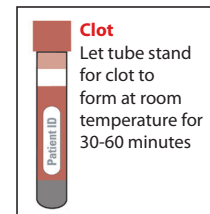
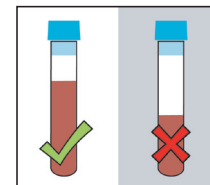
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Blood Specimen Collection (continued)

This chart shows the various tube tops used during the collection of DLO lab specimens, including the additive, number of inversions and order of draw¹.

	STOPPER	ADDITIVE	INVERSIONS
COLLECT IN THIS ORDER		Citrate ²	4
	Light Blue		
		Gel, serum	8
	Red / Black		
		No gel, serum	8
	Red		
		Heparin	8
	Green or Tan		
		EDTA	8
Lavender or Tan			
	EDTA	8	
Royal Blue			
	Sodium Fluoride (Glucose)	8	
Gray			
TUBES WITH OTHER ADDITIVES			
	Citrate ACD		
Yellow			

Please properly fill and separate all specimens. For questions, please call 1.800.891.2917.



1: "Order of Draw" and "Number of Inversions" are for specimens drawn in plastic tubes only.

2: When using a winged blood collection set for venipuncture and a coagulation (citrate) tube is the first specimen to be drawn, a discard tube should be drawn first. The discard tube must be used to fill the blood collection set tubing's "dead space" with blood but the discard tube does not need to be completely filled. This important step will ensure maintenance of the proper blood-to-additive ratio of the blood specimen. The discard tube should be a nonadditive or coagulation tube.

Specimen Handling and Transport

Microbiology Specimen Collection

TEST CODE	TEST NAME	COLLECTION DEVICE	TEMP
CULTURES			
4550.....	AEROBIC (Swab).....	1.....	Room Temp
4550.....	AEROBIC (Tissue, Biopsy, Body Fluid, Catheter Tip).....	2.....	Room Temp
4469.....	ANAEROBIC (Swab, Tissue Biopsy).....	1.....	Room Temp
4469.....	ANAEROBIC (Body Fluid).....	3.....	Room Temp
4446*	ANAEROBIC and AEROBIC	1.....	Room Temp
389.....	BLOOD (For Adult).....	4.....	Room Temp
389.....	BLOOD (For Pediatrics).....	5.....	Room Temp
4475.....	CAMPYLOBACTER	6.....	Room Temp
388**	CSF	N/A.....	Room Temp
4477.....	EAR (EXTERNAL) (Swab).....	1.....	Room Temp
8631.....	E COLI OH157	6.....	Room Temp
4480.....	EYE (Swab).....	1.....	Room Temp
4553.....	FUNGUS (Swab).....	1.....	Room Temp
4553.....	FUNGUS (Tissue, Biopsy, Body Fluid).....	2 or 20.....	Refrigerate
4605.....	FUNGUS (Skin, Hair or Nail only).....	2 or 20.....	Room Temp
4558.....	GENITAL	1.....	Room Temp
4554.....	MYCOBACTERIA (a.k.a AFB) (Swab).....	1.....	Refrigerate
4554.....	MYCOBACTERIA (a.k.a AFB) (Tissue, Biopsy, Body Fluid).....	2 or 20.....	Refrigerate
4482.....	NP	7.....	Room Temp
4482.....	NASAL	1 or 7.....	Room Temp
8801.....	STAPHYLOCOCCUS SCREEN	1.....	Room Temp
10019.....	STOOL (Salmonella/Shigella).....	6.....	Room Temp
10108.....	STOOL (Salmonella/Shigella/Campylobacter).....	6.....	Room Temp
4556.....	SPUTUM (Trach. Asp., Sputum, Bronch.).....	2.....	Refrigerate
4485.....	STREP GROUP A	1.....	Room Temp
282.....	STREP GROUP A , ANTIGEN (Rapid Strep).....	8.....	Room Temp
5617.....	STREP GROUP B	1.....	Room Temp
4479.....	SURVEILLANCE (Environmental) (Swab) (Water).....	1.....	Room Temp
394.....	THROAT	1.....	Room Temp
395.....	URINE	10.....	Room Temp
3021.....	URINE, SPECIAL	10.....	Room Temp
59320.....	QUANTITATIVE	2.....	Refrigerate
4487.....	YERSINIA	6.....	Room Temp
681.....	OVA AND PARASITES	16.....	Room Temp
6653.....	OVA AND PARASITES (2 Specimen Collection Sets).....	16.....	Room Temp
6652.....	OVA AND PARASITES (3 Specimen Collection Sets).....	16.....	Room Temp
11363.....	SURESWAB™ (Chlamydia).....	9.....	Room Temp
16898.....	SURESWAB™ (Bacterial Vaginosis DNA).....	9.....	Room Temp
19550.....	SURESWAB™ (Trichomonas).....	9.....	Room Temp
16492.....	SURESWAB™ (CT/NG).....	9.....	Room Temp
16491.....	SURESWAB™ (Vaginosis).....	9.....	Room Temp
15509.....	SURESWAB™ (Bacterial Vaginosis).....	9.....	Room Temp
16495.....	SURESWAB™ (Candida Albicans DNA).....	9.....	Room Temp
17333.....	SURESWAB™ (Vaginosis Plus).....	9.....	Room Temp
16494.....	SURESWAB™ (Candidiasis PCR).....	9.....	Room Temp
STAINS			
4503.....	ACID FAST STAIN ONLY (Tissue, Fluid).....	2.....	Refrigerate
3967.....	FECAL FAT STAIN (Raw Stool).....	2.....	Refrigerate
497.....	GRAM STAIN (Swab).....	1.....	Room Temp
497.....	GRAM STAIN (Tissue, Fluid).....	2.....	Room Temp
8627.....	FUNGUS / KOH, STAIN ONLY (Tissue, Fluid).....	2.....	Refrigerate
3963.....	WET MOUNT	3.....	Refrigerate
ISOLATE ID & MISCELLANEOUS			
34411.....	AEROBIC BACTERIUM ID (2 Isolates).....	N/A.....	Room Temp
392.....	AEROBIC BACTERIUM ID	N/A.....	Room Temp
14577.....	BV / VAGINITIS PANEL (Affirm).....	14.....	Room Temp
37212.....	C. DIFFICILE TOXIN A and B, EIA	2 or 20.....	Refrigerate or Frozen
17305.....	CHLAMYDIA/N. GONORRHOEAE DNA, SDA (Urine).....	12.....	Room Temp
17305.....	CHLAMYDIA/N. GONORRHOEAE DNA, SDA (Swab).....	11 or 13.....	Room Temp
17303.....	CHLAMYDIA TRACHOMATIS DNA, SDA (Urine).....	12.....	Room Temp
17303.....	CHLAMYDIA TRACHOMATIS DNA, SDA (Swab).....	11 or 13.....	Room Temp
11293.....	FECAL GLOBIN, STOOL (Medicare).....	15.....	Room Temp
11290.....	FECAL GLOBIN, STOOL	15.....	Room Temp
8625.....	GIARDIA AG, EIA	16.....	Refrigerate
831.....	MALARIA / BLOOD PARASITES	18.....	Room Temp
17304.....	NEISSERIA GONORRHOEAE (Urine).....	12.....	Room Temp
17304.....	NEISSERIA GONORRHOEAE (Swab).....	13.....	Room Temp
3950.....	PARASITE ID (Intestine).....	2.....	Room Temp
3946.....	PARASITE ID (External).....	2.....	Room Temp
4496.....	PINWORM ID	17.....	Room Temp
8628.....	SARCOPTES SCABIEI (Scabies).....	2.....	Room Temp
5463.....	URINALYSIS (Complete).....	19.....	Room Temp
3020.....	URINALYSIS W/ REFLEX TO CULTURE	19 & 10.....	Room Temp

*Collect two (2) Amies Gel Swabs **CSF Collection Tube (included with the lumbar puncture kit) is not provided by DLO.

Specimen Handling and Transport

Microbiology Specimen Collection (continued)

1



BBL™ CultureSwab™ Plus w/Amies Gel

2



Sterile Urine Cup

3



BD Vacutainer® Serum Red Top Tube

4



BacT/ALERT® SN & BacT/ALERT® SA (Adult)

5



BacT/ALERT® PF (Pediatric)

6



Para-Pak® C&S

7



BBL™ CultureSwab™ Plus w/ Amies Gel (w/Wire Shaft)

8



BBL™ CultureSwab™ EZ (gel free)

9



APTIMA® Vaginal Swab Transport Media (STM)

10



BD Vacutainer® Urine C&S Preservative Plus Plastic Tube

11



BD Probetec™ Q

12



BD Probetec™ UPT

13



BD Probetec™ Q

14



BD Affirm™ VPIII

15



InSure™ Card

16



Para-Pak® Zn-PVA FIXATIVE & Para-Pak® 10% BUFFERED NEUTRAL FORMALIN

17



Pinworm Paddle

18



BD Vacutainer® K2 EDTA 7.2mg

19



Urinalysis Tube

20



Para-Pak® CLEAN VIAL