

# Home Dialysis Patient Training Guide

REV.2022.11

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**Client Services**

800.800.5655

[www.aclab.com](http://www.aclab.com)

435 Oakmead Parkway

Sunnyvale, CA 94085

## Specimen Supplies

Your clinic will order the necessary supplies for the collection, handling and shipping of your specimens. In addition to a centrifuge, this includes the required tubes, needles, water testing supplies, packing and shipping supplies, etc. During your clinic visits, your care provider will give you supplies for the following month's draw, including:

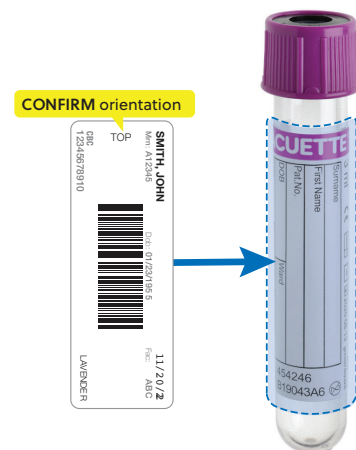
- Test tubes and barcode labels



- Collect specimens as indicated on the specimen labels
- Cross out the date and handwrite the correct draw date on the barcode label and contact your clinic with the correct collection date if different than what is printed on the specimen barcode label
- Biohazard bags with absorbent sheet for transportation of the specimens
- If applicable, packing supplies including cardboard sleeve, Styrofoam, ice packs, foam layers. FedEx shipping labels and Clinical Pak for shipping (your clinic will provide other instructions if FedEx is not used).

## Proper Labeling

- Place specimen barcode label closest to the cap and directly over the manufacturer's label with the patient name oriented closest to the cap.
- Ensure label is flat and smooth.
- Retain a window view to the specimen.
- Avoid placing label too low.



## Specimen Collection and Handling

It is recommended that all specimens, other than Post BUNs, be drawn prior to administration of heparin. Heparin causes interference with some tests, possibly causing false dilution of the specimen. This may affect results.

Collection order and specimen handling are summarized below. Most patients do not draw as many tubes as shown below. However, tubes should be drawn in this order to reduce contamination. If you are not drawing a tube listed, simply skip that one and continue to the next until you have drawn your required tubes. Your care provider will provide you with the proper tubes when you visit your clinic and they may also have you come to the clinic for tests with unique requirements.

During the collection, allow the tube to fill until the blood flow ceases.

Immediately after drawing, gently invert the tube in accordance to the instructions below. Proper inversion of specimens is a crucial step to ensuring adequate mixing of the additives contained within the tube and prevent clotting in some cases.

**Order of Draw  
Collection & Handling** 800.800.5655 | aclab.com

CONFIRM correct patient

CONFIRM correct collection date

CONFIRM correct tube

Process All Specimens within 2 hours				
	Follow the Order of Draw	Immediately Mix by Inverting	Run Balanced Centrifuge	Refrigerate
	ROYAL BLUE	8-10 times	✗	✓
	LIGHT BLUE	4 times	✗	✗
	RED/YELLOW	5-10 times	✓ After clotting	✓
	GREEN	8-10 times	✓ Immediately	✓
	LAVENDER	8-10 times	✗	✓
POST	GOLD/WHITE	8-10 times	✓ Immediately	✓
	GREEN/YELLOW ALTERNATE			

## Post Dialysis Sampling

For Hemodialysis patients, your care provider will provide modified instructions specific to your machine.

### SLOW-BLOOD-FLOW METHOD

#### Drawing the sample from the blood line sampling port

1. At the completion of hemodialysis, turn off the dialysate flow and decrease the UFR to 50 mL/hr, to the lowest TMP/UFR setting, or off. If the dialysis machine does not allow for turning off the dialysate flow, or if doing so violates clinic policy, decrease the dialysate flow to its minimum setting.
2. Decrease the blood flow to 100 mL/min for 15 seconds (longer if the bloodline volume to the sampling port exceeds 15 mL). To prevent pump shut-off as the blood flow rate is reduced, it may be necessary to manually adjust the venous pressure limits downward. At this point, proceed to obtain your sample. You can either shut off the blood pump before sampling, or leave it running at 100 mL/min while the sample is being drawn.
3. After the sample has been obtained, stop the blood pump (if not already stopped) and complete the patient disconnection procedure as per dialysis clinic protocol.

#### Drawing the sample from the arterial needle tubing using a Vacuette® device

1. Follow Steps 1 and 2 above (Slow-Blood-Flow-Method).
2. After the 15 second slow-blood-flow period (a slow-blood-flow period is still required to clear the small volume in the arterial needle tubing of recirculated blood), stop the blood pump. Clamp the arterial and venous blood lines. Clamp the arterial needle tubing. Disconnect the blood line tubing from the inlet blood line, and attach a Vacuette® with a Luer-Lok type of connection to the arterial needle tubing (or arterial port of the venous catheter). Release the clamp on the arterial needle tubing and obtain the blood sample.
3. After the sample has been obtained, stop the blood pump (if not already stopped) and complete the patient disconnection procedure as per dialysis clinic protocol.

### STOP-DIALYSATE-FLOW METHOD

1. At the completion of hemodialysis, turn off the dialysate flow (or set to bypass) and decrease the UFR to 50 mL/hr, to the lowest TMP/UFR setting or off.
2. Wait 3 minutes. Do not reduce the blood flow rate during this 3 minute period.
3. Obtain the blood sample, either from the sampling port on the inlet blood line, from the arterial needle tubing or from the arterial port of the venous catheter if using the needle-free method as described in the preceding section. If sampling from the inlet blood line, it does not matter if you stop or do not stop the blood flow while this sampling is being taken. It is best to stop the blood pump prior to sampling. In the stop-dialysate-flow method, slowing the blood flow prior to sampling should not be done.
4. After the sample has been obtained, return the patient's blood in the bloodlines and dialyzer per protocol.

# Peritoneal Dialysis (PD) Tube Identification

## PD Adequacy

**Specimens** Plasma, 24 Hour Dialysis Fluid, 24 Hour Urine (if applicable)



## 24 Hour Drain Volume Calculation

APD/CCPD = Total Overnight + Total Daytime Collection

CAPD = Total Drain Volume of each bag collected over 24 Hours

## Effluent Culture

**Specimens** Effluent Fluid



## Fluid Cell Count

**Specimens** Effluent Fluid



## Peritoneal Equilibration Test (Standard, Fast, Modified)

### PET, Standard

**Specimens** Plasma, Dialysis Fluid Sample at Hours 0, 2 and 4



### PET, Fast

**Specimens** Plasma, Dialysis Fluid Sample at Hour 4



### PET, Modified

Similar to the standard PET, but uses 4.25% glucose solution

**Specimens** Plasma, Dialysis Fluid Sample at Hours 0, 1, 2 and 4



## Fluid Overnight Dwell

Kinetic modeling software may require a Fluid Overnight Dwell result in addition to PET, Standard results

**Specimens** Long overnight dwell; 8-12 Hours in length



## Centrifuge Technique

Blood includes blood cells and serum. Electrolytes, nutrients and vitamins, hormones, clotting factors and proteins, such as albumin and immunoglobulins (antibodies to fight infection), are dissolved in the serum. (You may also hear the term "plasma". When clotting factors have essentially been inactivated from the serum by additives contained in some tubes, the remaining specimen is plasma – the clear or yellow part).

The cellular portion of blood contains red blood cells (RBCs), white blood cells (WBCs) and platelets.

Some tests, depending on what is being measured, require these components to be separated. The centrifuge separates these components ensuring test accuracy. For example, measuring potassium requires plasma only and any blood cells in the specimen would impact the accuracy.

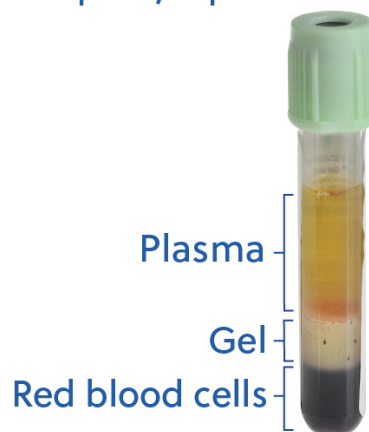
Proper centrifugation (spinning) is important to ensure a quality specimen. Your centrifuge has already been calibrated at the correct rotations per minute (RPM) of 3000. You will need to set the timer to 15 minutes for specimens requiring centrifugation.

It is important the centrifuge is balanced. To balance the centrifuge, tubes of the same volume should be placed across from each other, using tubes filled with water if needed. The centrifuge should be placed on a flat surface. Balancing the centrifuge and placing it on a flat surface ensure it will not vibrate or break tubes while operating. When placing the tubes into the centrifuge, particularly the green top tubes, be mindful that the tube top does not rest on the lip of the red tube inserts or the tube lid will come off during the centrifuge cycle.

**Opposing tubes must be identical,  
use balance tube if needed**

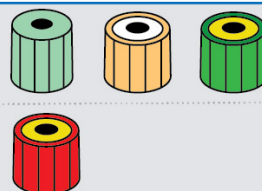


**Properly Spun Tube**



**Centrifuge immediately after draw**

**Centrifuge after fully clotted**  
Minimum 1/2 hour



# Cleaning and Disinfecting Centrifuges

## Cleaning

- Place the centrifuge on a flat surface.
- Clean the centrifuge weekly using a mild detergent. Spills should be wiped up immediately.
- Clean both the exterior and the interior.
- Interior cleaning includes the interior bucket, specimen holder, rotor and rubber cushion.

## Disinfecting

- Disinfect using a 10% bleach solution (one part bleach to nine parts water).
- Exterior of the centrifuge should be disinfected weekly.
- Interior should be disinfected monthly.

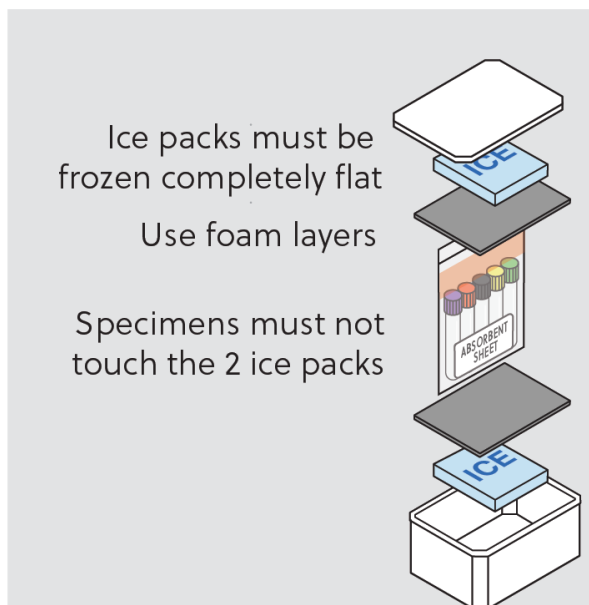
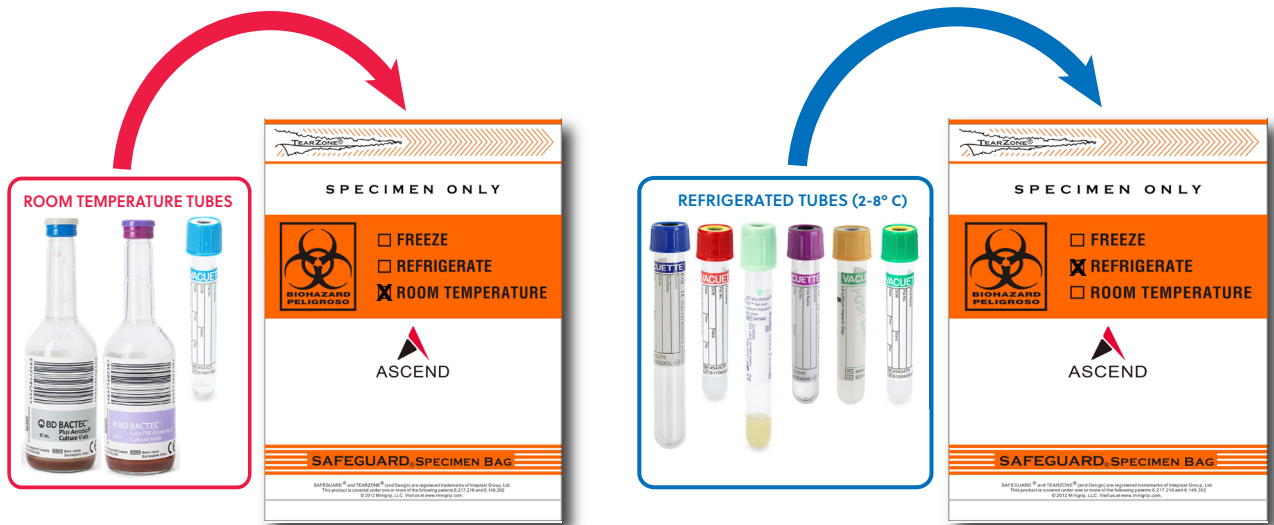
## Tips

- Always unplug power cord from the electrical outlet before cleaning.
- Wear disposable gloves.
- Follow your clinic's safety procedures when cleaning and disinfecting the centrifuge.
- Before transporting the centrifuge to a new location, the exterior and interior surfaces should be cleaned and disinfected.
- Plug centrifuge back into electrical outlet only when completely dry.
- Prepare a fresh 10% bleach solution each time. Once mixed with water, bleach loses effectiveness after 24 hours. The solution cannot be stored for future use.

## Specimen Packaging

### Transporting Specimens to Clinic

It is imperative you return your specimens to the clinic on the same date of collection for shipping. This includes water or dialysate samples, if applicable. Make sure specimens that need to be shipped refrigerated are refrigerated, and those that need to be at room temperature remain at room temperature until transported to the clinic. Use separate biohazard transport bags when packaging refrigerated and room temperature samples. Do not expose specimens to extreme temperatures, i.e., do not leave them in your car on very cold or very hot days.



Call 800-GO-FEDEX (800.463.3339) to schedule a pickup

Retain FEDEX tracking receipt

Report treatment information to home dialysis facility

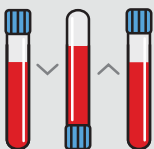








# Home Patient Reference

## Order of Draw

Follow Order of Draw and invert specimens immediately following collection

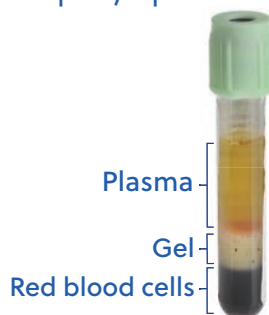
POST

 <p>Mix by inverting</p>	 <p>ROYAL BLUE 8-10 times</p>	 <p>LIGHT BLUE 4 times</p>	 <p>RED/YELLOW 5-10 times</p>	 <p>GREEN 8-10 times</p>	 <p>LAVENDER 8-10 times</p>	 <p>GOLD/WHITE 8-10 times</p> <p> GREEN/YELLOW ALTERNATE</p>
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## Centrifuge Gel Tubes

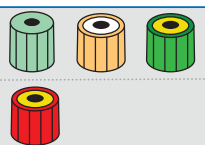
Opposing tubes must be identical, use balance tube if needed

Properly Spun Tube

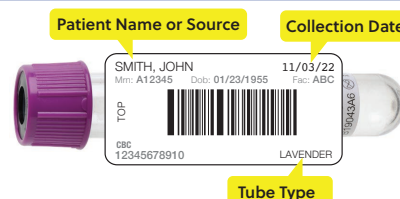


Centrifuge immediately after draw

Centrifuge after fully clotted  
Minimum 1/2 hour



## Specimen Labeling



## Specimen Packaging

Refrigerated



Must use Specimen Transport Biohazard Bag with Absorbent Sheet for all specimens

Ice packs must be frozen completely flat  
Use foam layers

Specimens must not touch the 2 ice packs



DO NOT tape sleeve or cooler



Place in clinical pak








Call 800-GO-FEDEX (800.463.3339) to schedule a pickup  
Retain FEDEX tracking receipt  
Report treatment information to home dialysis facility

# Environmental Samples

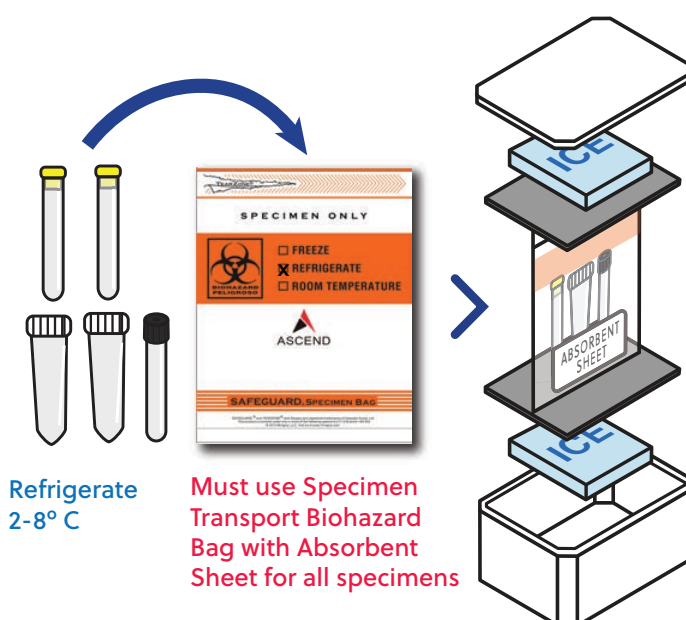
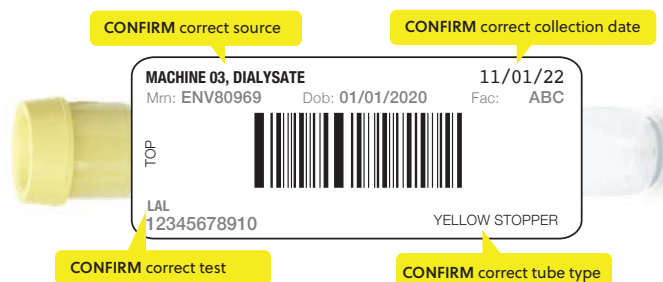
## Collection & Handling

Proper sterile collection technique is required when collecting environmental samples

	Type	Tests	Collection	Refrigerate
	Sterile Cup w/Transfer Port	For collection only	<ul style="list-style-type: none"> <li>Discard after collection</li> <li>DO NOT ship</li> </ul>	—
 	Yellow Stopper Yellow 6mL Alternate	LAL Colony Count	<ul style="list-style-type: none"> <li>Collect sample using Sterile Cup w/Transfer Port</li> <li>Fill tube until flow ceases</li> <li>1 or 2 tubes depending on tests ordered</li> </ul>	✓
	Conical Tube	Water Analysis Conductivity	<ul style="list-style-type: none"> <li>Fill to MAX FREEZE line</li> <li>Secure lid</li> <li>1 or 2 tubes depending on tests ordered</li> </ul>	✓
	Black Top	Electrolyte Dialysate Plus Glucose, Dialysate	<ul style="list-style-type: none"> <li>Collect sample using Sterile Cup w/Transfer Port</li> <li>Fill tube until flow ceases</li> </ul>	✓

## Labeling & Packaging

- ✓ Verify label information
- ✓ Source name oriented towards top



# Commonly Ordered Laboratory Tests

## Chemistry/Immunochemistry

- Albumin
- Alkaline Phosphatase
- ALT (SGPT)
- Aluminum
- AST (SGOT)
- Bilirubin, Total
- BUN
- C-Reactive Protein (CRP)
- Calcium
- Calcium Phosphorus Product
- Calcium Phosphorus Product, Adjusted
- Chloride
- Cholesterol
- Comprehensive Metabolic Panel
- Comprehensive Metabolic Panel w/ Phosphorus
- CO<sub>2</sub>
- Creatinine
- Ferritin
- Folate (Folic Acid)
- Glucose
- Iron
- Iron Status w/ Iron & Transferrin
- LDH
- Lipid Panel
- Magnesium
- Phosphorus
- Potassium
- Protein, Total
- PTH, Intact
- Sodium
- TSH
- Triglycerides
- Uric Acid
- Vitamin B12
- Vitamin D 25-OH

## Communicable Disease Monitoring

- COVID-19 SARS-CoV-2 Ab
- Hep B Core Ab, Total
- Hep B Surface Ab, Quantitative
- Hep B Surface Ag w/ Confirmation Reflex
- Hep C Ab w/Reflex RNA
- HIV 1, 2 Ab/Ag w/Reflex

## Hemodialysis Adequacy

- Kt/V Natural Log, URR
- Kt/V Standard, URR

## Hematology

- CBC & Differential
- Hemoglobin
- Hemoglobin & Hematocrit
- Hemoglobin A1C
- Hemogram
- Platelet Count
- Reticulocytes

## Clearance Tests

- 24 Hour Urine Creatinine Clearance
- Residual Urea Clearance (KrU)

## Peritoneal Dialysis

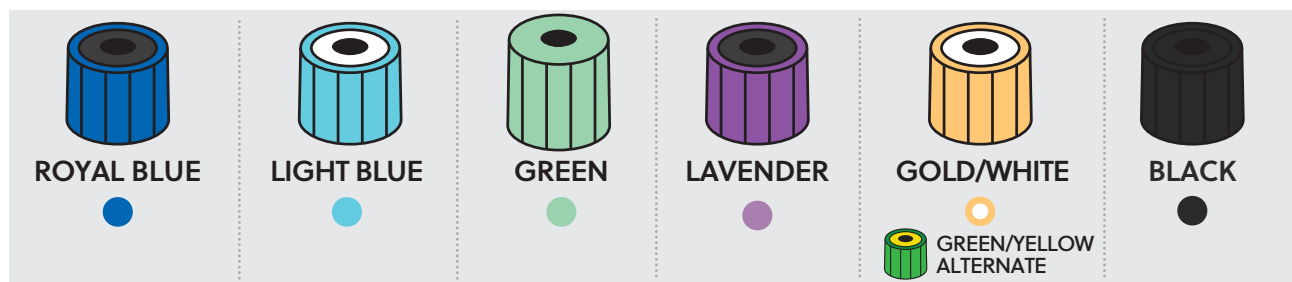
- PD Adequacy
- PET, Standard

## Coagulation

- Prothrombin Time (PT)

## Therapeutic Drug Monitoring

- Digoxin
- Vancomycin



For more information, please contact Client Services at 800.800.5655, Option 1.



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