



**Rancho Los Amigos National Rehabilitation Center**  
**DEPARTMENT OF NURSING**  
**ADMINISTRATIVE**  
**POLICY AND PROCEDURE**

**SUBJECT:** Hemodialysis: Dialysis Machine Set-Up  
Procedures

**Policy:** A190.2

**Effective Date:** July 3, 2023

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**PURPOSE:** To provide step-by-step guidelines for safely setting up the dialysis machine.

**POLICY STATEMENTS:**

A hemodialysis nurse who has completed training and demonstrates competency in the procedure, may set –up the dialysis machine.

**PROCEDURE:**

**Equipment:**

Fresenius Dialysis Machine (Model 2008T)  
Portable RO System  
Blood Lines  
Dialyzer  
Normal Saline  
Bicarbonate Concentrate  
Acid Concentrate

**Procedure Steps:**

1. Perform hand hygiene
2. Start-up machine
  - Turn power on
  - Turn on portable Reverse Osmosis (R.O.)
3. Before beginning the daily preparation procedures, visually inspect the machine to verify that:
  - The water supply line is connected to the water inlet and the water is turned on
  - The machine’s drain line is inserted into a drain with an air gap
  - The power cord is plugged into a grounded, GFI-protected wall socket, and the main power switch located on the back of the machine is in the ON position
  - The heater switch is in the ON position
  - The acid/acetate suction line (red connector) is inserted into the red, acid/acetate, rinse port
  - The bicarbonate suction line (blue connector) is inserted into the blue, bicarbonate, rinse port
  - Check that the bibag door is firmly closed
  - The dialyzer supply line (blue connector) and dialyzer return line (red connector) are inserted into the matching-color connectors of the shunt interlock
  - The machine has been recently disinfected, rinsed, and is ready for use
  - Ensure the emergency hand crank for the blood pump is available

**KEYNOTE:** If any of the conditions listed vary from those found on the machine, correct them before continuing with the daily preparation procedure

**4. For initial treatment of the day.**

- Press the POWER key on the control panel. The “Select Program” screen will appear after approximately one minute
- If the machine is filled with disinfectant or Rinse is the only option that appears in the “Select Program” screen, the machine must complete a rinse cycle before being used for treatment. Select Rinse to start the rinse cycle

- If the bibag disposable is the bicarbonate source, do not pull the blue bicarbonate connector from the machine's rinse port. Do the following to prepare the bibag disposable:
  - a. Remove the white plastic seal from underneath the water and bicarbonate nozzles of the bibag disposable
  - b. Open the bibag door on the machine by lifting up on the dark-gray handle
  - c. With the white bibag handle facing outward, hang the bag on the bibag connector nozzles
  - d. Close the door, making sure it latches firmly in place. An audible click means the door is closed
- Insert the acid concentrate (red) connector into a jug containing sufficient acid concentrate for an entire treatment. If acetate concentrate is being used, insert the red connector into the acetate supply
- If the machine is being prepared for normal dialysis, select the **Dialysis** button on the display screen by highlighting the button with the Touchpad and either tapping or pressing the **CONFIRM** key
- Verify that the concentrate type, displayed near the top of the screen, correctly matches the prescribed concentrate type, and that the acid/bicarbonate or acetate concentrates connected to the machine match the type selected. If an incorrect concentrate type is displayed, the correct concentrate must be entered
- After the concentrate displayed is correct, verify that the Base Na+ and Bicarbonate are as prescribed. Press the CONFIRM key, and then select the **Home** screen-button
- When the machine is ready (water at minimum temperature and no air in the hydraulics), it will begin mixing the concentrates. If a bibag disposable is connected, the machine will then fill the bag with heated water to be used as a bicarbonate concentrate for dialysate production. The machine's conductivity and temperature readings should stabilize within ten minutes

#### **5. While the 2008T hemodialysis machine is preparing the dialysate, the bloodlines may be set up.**

- Arterial Bloodline Setup
  - a. Close medication port clamp
  - b. Snap the arterial chamber into its holder
  - c. Open the blood pump door
  - d. Load the blood pump segment
  - e. Snap remaining arterial tubing in the clips along the red guidelines shown on modules
  - f. Aseptically place the patient end of the arterial line into the priming bucket clip
  - g. Snap the dialyzer end of the arterial bloodline into the dialyzer holder clip
- Venous Bloodline Setup
  - a. Close medication port clamp
  - b. Open the level detector door and roll the venous drip chamber into its holder with the filter below the sensor heads. Close and latch the door
  - c. Snap remaining venous tubing in the clips along the blue guidelines shown on modules (do not insert the venous bloodline into the venous clamp yet)
  - d. Snap the dialyzer end of the venous bloodline into the dialyzer holder clip
  - e. Aseptically place the patient end of the venous line into the priming bucket clip
- Dialyzer Setup
  - a. Mount the dialyzer in its holder, arterial end up
  - b. If the Crit device will be used for this treatment, connect the Crit-Line Blood Chamber to the dialyzer's arterial port at this time
- Priming the Blood Circuit

Prime the blood circuit according to how machine was set up. Follow dialyzer manufacturer's instructions for priming and rinsing dialyzers

  - a. Connect the dialyzer end of the arterial bloodline to the arterial port of the dialyzer. Rotate the dialyzer to the arterial end-down position
  - b. Connect the dialyzer end of the venous bloodline to the venous port of the dialyzer
  - c. Insert the venous line in the venous line clamp and the optical detector. Close the optical detector door
  - d. Hang a saline bag and attach an administration line, if not already attached, to the saline port on the arterial bloodline. Aseptically spike the one-liter saline bag
  - e. Gravity prime the patient end of the arterial bloodline below the saline "T" with saline. When primed, clamp the patient end of the arterial bloodline
  - f. On the control panel keypad, press the Prime key

- g. Press the blood pump Start/Stop key and run the blood pump at a rate of 150 ml/min
- h. Fill the arterial drip chamber to an acceptable level. Close the arterial pressure monitor line clamp and disconnect the line from the arterial pressure port so the port is open to atmosphere
- j. Run the blood pump to flush saline through the circuit until a fluid level is detected in the venous drip chamber
- k. Press the RESET key on the control panel to restart the blood pump and continue flushing saline through the blood circuit
- l. After the required saline amount has passed through the circuit, press the Start/Stop key on the blood pump to stop the pump
- m. Clamp the patient end of the venous bloodline
- n. Aseptically connect the patient end of the arterial bloodline to the patient end of the venous bloodline using a sterile recirculation piece. Unclamp both lines
- o. Adjust the fluid levels in the venous drip chambers
- p. Set the blood pump rate to 300-400 mL/min. Press the blood pump Start/Stop key to start the pump and begin recirculation
- q. Ensure that the extracorporeal circuit is free of air bubbles
- Recirculation and Final Set-Up Procedure
  - a. Rotate dialyzer to arterial inlet up
  - b. Check the conductivity and pH of the dialysate and test for residual disinfectant before connecting the dialysate lines to the dialyzer
  - c. Connect the arterial monitor line to the arterial pressure port using a transducer protector and verify that the monitor line is unclamped
  - d. Connect the venous pressure monitor line to the pressure port. Be sure to insert a transducer protector between the line and the port. Verify that the monitor line is unclamped
  - e. Connect dialysate lines to dialyzer by matching the color of the dialyzer connector to the color of the blood tube fitting and then close the shunt door
  - f. Pull on the dialyzer connectors to make sure they are firmly connected to the dialyzer
  - g. When the dialysate compartment is filled, rotate the dialyzer so the arterial inlet is down
  - h. After priming the extracorporeal blood circuit, press RESET to clear all alarms. Set the blood pump rate to 300-400 ml/min and start the blood pump to begin recirculating the saline through the circuit
  - j. Check blood tubing to ensure that there are no kinks, especially between the blood pump and the dialyzer
  - k. Discard 50 mL of saline from arterial line and 250 mL from venous line
  - l. Connect patient to start the dialysis treatment

**Key Note:** The set-up of blood lines and dialyzer and the priming procedure are to be performed at the patient's bedside

- HD machine 2008T does self-test conductivity and PH levels of the dialysate solution at the beginning of every treatment. Verify pH levels by utilizing pH test strips and document value in patient's medical record.
- Perform hand hygiene.

(See Initiation and Termination of Hemodialysis Policy)

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