



MANITOBA RENAL PROGRAM

SUBJECT <ul style="list-style-type: none"> Initiation and termination of Treatment using the Fresenius 5008 ONLINEplus™ System 	SECTION 30.10 Hemodialysis Equipment Procedures
	CODE 30.10.03
AUTHORIZATION <ul style="list-style-type: none"> Professional Advisory Committee, Manitoba Renal Program Nursing Practice Council, St. Boniface Hospital 	EFFECTIVE DATE April 2018
	REVISION DATE

PURPOSE:

- To describe the procedure for initiation and termination of hemodialysis treatments using the Fresenius 5008 Cordiax ONLINEplus™ system.

POLICY:

- Nurses who have received instruction and who have demonstrated competency to educator or delegate may perform these procedures.
- Unit Assistants/Nursing Assistants who have received instruction from an Educator and demonstrated competency may perform part of this procedure as indicated with this symbol **▲**

EQUIPMENT:

- Fresenius 5008 Cordiax Therapy Hemodialysis machine set up as per MRP Policy 30.10.02 *Fresenius 5008 Preparation for Hemodialysis using the ONLINEplus™ System*
- Supplies as needed for vascular access as per MRP policies 30.20.01 *Venipuncture of Arteriovenous Fistula/Graft*, 30.20.02 *Accessing and Locking Hemodialysis Central Venous Catheter* or 30.20.04, *Use of Closed Needleless Access Device with Hemodialysis Central Venous Catheters*.

PROCEDURE

A. Initiation of treatment

- Before connecting the patient to the 5008 ensure:
 - All connections and lines are secure and tightened.
 - Absence of air in the blood lines and the correct position of all fluid levels.
 - Verify all checks and documentation related to preparation of the 5008 is complete.
- Press Blood Pump I/O to stop pump
 - Message reads:
Priming/Rinsing-Continue- Exit
 - Press **Exit**

KEY POINTS

- A minimum cumulative pre-treatment rinse of 2500 ml is required for dialyzers when an assessment determines that patient sensitivity of the dialyzer is an issue.
- Prompts appear on the display screen for steps to connect patient. Ensure bloodlines are clamped before proceeding.

PROCEDURE

3. Perform hand hygiene and don clean gloves. Clamp arterial blood line and vascular access.
4. Disconnect arterial blood line from Safeline double ended blue circulation adapter. Place Safeline in line holder.
5. Maintaining aseptic technique, connect arterial blood line to patient's vascular access.
6. Remove blue connector from Safeline and connect to bloodline access port PRE dialyzer (remove white cap).
7. Remove the venous blood line from the rinse port and discard the connector.
8. Clamp venous blood line and ensure the venous access is also clamped.
9. Maintaining aseptic technique, connect venous blood line to patient's access.
10. Close rinse port (located bottom left of the 5008.)
11. Open clamps on the venous and arterial bloodlines and on the access lines.
12. Prompt appears: Start the blood pump. Press OK
 - Blood pump will start at 100 mL/min.
 - Monitor vascular access site and arterial venous pressures while gradually increasing pump speed to 200 mL/min
13. Once the optical detector senses blood the message reads "*Blood detected – Treatment Start*"
 - Touch the **START** button
14. Increase blood pump speed.
15. Turn dialyzer red end up.

KEY POINTS

- Maintain aseptic technique when handling open blood lines and connection sites.
- See MRP Policy 30.20.09 *Single Needle (Click-Clack) Hemodialysis for Fresenius 5008 Dialysis Delivery system* as needed per facility policy.
- Supplies substitute for boluses and reinfusion
- Do not contaminate rinse port with blood; perform hand hygiene and change gloves as needed
- Do not contaminate rinse port with blood; perform hand hygiene and change gloves as needed.
- The blood pump can also be started by pressing I/O on the preparation screen
- Maximum blood pump speed is 400 mL/min unless prescribed otherwise.
- Monitor arterial and venous pressures
- Maximum pressure limits
 - arterial -250 mmHg
 - venous +250 mmHg
- For Measuring AVG dynamic venous pressure, see Procedure 30.20.06 *AVF/AVG Vascular Access Assessment*.
- To prevent air bubbles from entering venous blood line during treatment,

PROCEDURE

16. Obtain and document vital signs and initial parameters on Hemodialysis Treatment record.

17. Verify and document on treatment record:
 - UF Goal set
 - UF profile set
 - UF timer on
 - Dialysate flow on and at prescribed rate
 - Heparin line unclamped and heparin infusing (if ordered)

18. Administer Heparin bolus/prime as per physician's order if not given prior to initiation of HD.

B. Termination of treatment

1. **If the patient has completed dialysis time 5008 will display:**
 - Treatment goal achieved,
 - Treatment **Continue** or **Reinfusion Start**
 - Touch **Reinfusion Start**.
 - Blood pump stops

OR

If patient need to discontinue hemodialysis prior to treatment goal/time achieved:

- Press **Reinfusion button**, then **I/O**
2. Document data from the Fresenius 5008 on to the Hemodialysis Flow sheet (form #W-00417) as per MRP Documentation Standard 60.20.02 *Hemodialysis Flow Sheet Standard (for Fresenius 5008)*
 3. Blood pump stops.
 4. Perform hand hygiene and don clean gloves.
 5. Clamp red arterial clamp on bloodline and clamp the patient's arterial access.
 6. Disconnect patient's arterial line from access and attach to a new sterile Safeline blue recirculating adapter.

 7. Disconnect the Safeline from the blood line access port pre dialyzer and attach to the other end of the **blue** recirculating adapter.

KEY POINTS

- Refer to MRP policy 30.10.19 *Changing Dialysate Concentrate* during hemodialysis treatment if a change of concentrate is required after initiation of hemodialysis.

- See MRP Policy 30.10.20 *Administering a Heparin Bolus During Hemodialysis Treatment Using the Fresenius 5008 Heparin Pump*

- For emergency reinfusion MRP Policy 30.10.22 *Emergency reinfusion procedure using OnLine Priming*
- In the event of a long term power failure and empty battery, see MRP Policy 30.10.23 *Manual Reinfusion Procedure when using OnLine Priming*
- Refer to following MRP procedures for vascular accesses: 30.30.01 *Venipuncture of Arteriovenous Fistula/Graft*, 30.30.02 *Accessing and Locking Dialysis Central Venous Catheter*, and 30.30.04 *Use of Closed Needleless Access Device with Hemodialysis Central Venous Catheters*.

- This data is saved on the machine and patient card and can be recorded after patient has been reinfused.

- Attach 0.9%NaCl syringe to the arterial access and flush
- Maintain aseptic technique when handling open blood lines and connection sites
- If sterile Safeline blue adapter not available may use Fresenius recirculating connector (#04-9502-8)

PROCEDURE

8. Unclamp arterial blood line.
9. Close the door.
10. Message- *Online Reinfusion*- Press OK.
11. Message: *Continue Reinfusion OR Remove Lines*:
 - a. If blood has been reinfused and patient's blood pressure is within normal limit, do not continue reinfusion
 - b. If patient requires additional fluid volume to clear lines and/or treat hypotension, press continue until resolved.
12. Once blood is returned clamp venous blood line and patient's venous access.
13. Disconnect venous bloodline from access
14. Disconnect venous pressure monitor line from transducer and attach venous blood line to venous pressure monitor line.

C. Removing and Discarding the Extracorporeal Circuit Δ:

1. Press the Remove bloodlines button (if not on screen press Blood System):
 - Message reads "*leave outer doors closed whilst waiting*".
 - Close doors and wait.
2. TAB: Message reads "Remove blood lines completely"
 - Open outer doors.
 - Remove and discard all lines. Close outer doors
3. TAB: Insert inlet dialyzer coupling into the shunt interlock door to empty:
 - Turn Dialyzer blue end up, and place blue dialysate hose on the shunt and close door.
 - *Message reads*: "The dialyzer is being emptied" followed by:
 - *Message reads*: "Dialyzer is now empty"
 - Once the dialyzer is drained, place the red

KEY POINTS

- Blood pump starts automatically at 200 mL/min and will continue to run until blood is no longer sensed.
- If reinfusion is to continue, pump will automatically run until 360 mL has been reinfused.
- Attach 0.9%NaCl syringe to the venous access and flush (for CVC and for AVF/G prn.)
- Maintain aseptic technique when handling open blood lines and connection sites
-
- To ensure closed system for discard.
- It is important to disconnect venous pressure monitor line from transducer prior to pressing *Remove bloodlines* as pressure increases during removal of bloodlines and may force fluid (blood) back into transducer (Refer to MRP Policy 30.10.18 *Cleaning and Disinfection of the Fresenius 5008 Hemodialysis System* if blood backs up into transducer).

- Ensure patient's venous access is disconnected from the bloodline.
- Blood lines will automatically be disengaged from clamps and pump mechanisms.
- There will be several tabs opening on the screen, with only one tab visible at a time. You may scroll between tabs as needed

PROCEDURE

dialysate hose on the shunt and close door.

4. TAB: Save Patient Information to Patient card (prn):

- Message reads "Saving data to card. Leave card inserted"
- Message reads "Save modified treatment parameters onto the card?"
- Message reads "Saving data to card. Leave card inserted".
- Remove card when message disappears and place in patient chart.

5. TAB: Message reads: Replace the concentrate wand(s) into holder:

- Remove wands from containers and place into appropriate holder.

6. If using Bibag: TAB: Message reads:

- "Bibag® empty can now be removed"
- Remove Bibag®, discard, close door

OR

- The Bibag® should drain automatically. If it does not:
 - Select the Dialysate button
 - Select **empty Bibag®**. (on the top of the screen)
 - Press **OK**
 - Discard once empty and close the door.

7. Perform appropriate cleaning procedure:

- Select Cleaning on the main screen
- Choose appropriate cleaning cycle:
 - Rinse
 - Heat disinfect
 - Cold Disinfect/Degreasing

8. Wipe the exterior of the 5008 with approved disinfectant.

KEY POINTS

- Accepting yes will save any modifications to the stored treatment parameters.

- Refer to MRP Policy 30.10.18 *Cleaning and Disinfection of the Fresenius 5008 Hemodialysis System*

- If ONLINE priming is to be used for the next patient's treatment, a Disinfection cycle must be selected.

- Refer to MRP Policy 30.10.18 *Cleaning and Disinfection of the Fresenius 5008 Hemodialysis System*

DOCUMENTATION:

- MRP Treatment Sheet

REFERENCES:

Centers for Disease Control and Prevention. (2012) Infection Prevention in Dialysis Settings. Retrieved October 4, 2012 from <http://www.cdc.gov/dialysis/provider/CE/infection-prevent-outpatient-hemo.html>

Fresenius Medical Care: 5008 CorDiax ONLINEplus System; Simple, Safe, Cost-Effective, 2015, EQMO915028E-09/2015.

- Fresenius Medical Care. (2007). Optiflux F200NR F180NR F160 NR Hollow Fiber Dialyzers products insert (Rev 01-07). Lexington, MA: Author.
- Fresenius Medical Care (2015) 5008 Hemodialysis System Instructions for Use (Ed. 10B-015) Richmond Hill, ON: Author.
- International Organization for Standardization (2011) CAN/CSA-ISO 11663-11 Quality of dialysis fluid for haemodialysis and related therapies. March 2011 Mississauga, ON: Canadian Standards Association.