



MANITOBA RENAL PROGRAM

SUBJECT <ul style="list-style-type: none"> ▪ Fresenius 5008 Blood Leak Alarms; responding to 	SECTION 30.10 Hemodialysis Equipment and Procedures
	CODE 30.10.08
AUTHORIZATION <ul style="list-style-type: none"> ▪ Professional Advisory Committee, Manitoba Renal Program ▪ Nursing Practice Council, St. Boniface Hospital ▪ Professional Advisory Council, St. Boniface Hospital 	EFFECTIVE DATE September 2012
	REVISION DATE November 2014 March 2017

PURPOSE:

1. To detect presence of blood in dialysate and to prevent contamination of blood with dialysate.

POLICY:

1. Registered Nurses and Licensed Practical Nurses in Hemodialysis who have received instruction and demonstrated competency to the renal educator or delegate may respond to a blood leak alarm.
2. The Fresenius 5008 will mandate a “Heat Disinfection” cleaning cycle once blood lines are removed after any Blood Leak alarm.
3. “A Degreasing” cleaning cycle is **must be done** after the Heat Disinfection cycle is completed if the blood leak alarm cannot be cleared (even if reagent test strip is negative for red blood cells) .

EQUIPMENT:

- Supplies: Blood testing reagent
- 10 ml syringe

KEY POINTS:

- Verify that the reagent strips have not expired

PROCEDURE:

1. Note the type of blood leak alarm on the screen:
 - Dimness warning
 - Blood leak!
 - Severe Blood leak!
2. For **any** type of blood leak alarm, **immediately** visualize the dialysate in the outflow hose.
3. If blood is observed in the outflow hose:
 - **STOP HEMODIALYSIS** and blood pump (if running)

KEY POINTS:

- Blood leak alarm will activate when sensor detects blood loss of 0.5 ml/minute into the dialysate at a patient haematocrit of 0.25
- The blood leak alarm response is delayed if the dialysate flow is turned off.

PROCEDURE:

- **DO NOT RETURN THE EXTRACORPOREAL BLOOD.**
- Clamp the arterial and venous blood lines and accesses, and disconnect the patient.

4. For **any** type of blood leak alarm, if NO blood is observed:

- Obtain dialysate sample from sampling port on the outflow dialysate hose using 10 ml syringe. If outflow port not available, obtain sample from drain hose.
- Test for the presence of red blood cells according the manufacturer's instructions of the blood testing reagent strip.
- If reagent strip **positive** for the presence of blood:
 - **STOP HEMODIALYSIS**
 - **DO NOT RETURN THE EXTRACORPOREAL BLOOD**
 - Clamp the arterial and venous blood lines and accesses, and disconnect the patient.
- If reagent strip **negative** for the presence of blood, note the type of blood leak warning.

5. For **DIMNESS** warning:

Message reads "Blood leak detector detects dimness warning-Desired >2000 mV- Actual xxxx mV – Confirm"

- Touch "confirm"
- Follow steps 2-4 above.
- If no blood detected, dialysis can be continued as normal.
- If alarm continues, perform reinfusion.
- If the alarm persists despite dialysate testing negative for blood, machine will require a mandatory degreasing cleaning cycle. If resources allow, remove the machine from service.

6. For **Severe Blood leak!** Alarm:

Message reads: "Severe Blood leak! –Override"

- Follow steps 2-4 above.
- If no visible blood in outflow dialysate hose touch "Override"
- If reagent strip is negative for blood, may continue with dialysis. If alarm continues, perform reinfusion.
- If the alarm persists despite dialysate testing negative for blood, machine will require a mandatory degreasing cleaning cycle. If resources allow, remove the machine from service.

KEY POINTS:

- If the patient has CVC follow MRP policy 30.20.02

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- Possible causes: for warnings:
 - Dialysate side primed in dialysis mode.
 - High deaeration caused by high ultrafiltration rate.
 - Dialysate drain line not tightly connected
 - Grease or calcium deposits.

Possible cause:

- Severe dialyzer membrane rupture.
- Override time: 1.5 minutes each time the button is touched.
- "Blood leak override" will be displayed in the current messages field.
- The alarm indicator will stop lighting if the leak is closed.

PROCEDURE:

7. If the patient requires a new set up of bloodlines and is to continue dialysis, prior to removing the disposables note the parameters when hemodialysis was stopped:
 - UF Time remaining (this will be new UF time),
 - UF volume remaining (new UF goal = original UF goal - UF Volume removed),
 - Na + mmol/l (under the Na+ Profile) (will be the start Na in the Na+ profile),
 - UF rate (start rate in the UF profile.)
8. Removing the disposables after a blood leak:
 - Press the Blood System Button
 - Press "*Remove both blood lines*"
 - Follow the on screen instructions
9. The 5008 will mandate a Heat Disinfection after blood lines are removed. If the alarm was not able to be cleared, the machine must be put into a Degreasing/Cold Disinfect cleaning cycle prior to next dialysis for a new patient.
10. Notify Nephrologist if blood is discarded. Draw CBC next treatment.
11. If confirmed blood leak, note the dialyzer lot number and report to manager of MRP technology.

KEY POINTS:

- Add extra reinfusion volume to target UF goal if necessary (may increase UF goal and start rate)
- UF and Na+ profiles can only be used if treatment time is a minimum 2 hours (3.5 hours if using profile #3)

DOCUMENTATION:

- Hemodialysis Treatment Record (form #1592)
- IPN Patient Health Record

REFERENCES:

Fresenius Medical Care 5008 Hemodialysis System Operating Instructions: Software version 4.50 :Edition 10/03.13

Fresenius 5008 Therapy System: Advanced Training Resource Binder. Prepared for Manitoba Renal Program June-July 2011. Fresenius Medical Care Canada, Richmond Hill ON.