Steps to Recirculate CRRT Circuits in CCTC

When is recirculation appropriate?

- Filter is less than 24 hours
- No imminent likelihood of filter clotting
- Maximum duration of saline recirculation is 2 hours
- DO NOT recirculate if changing a line for a suspected/confirmed blood stream infection

Overview:

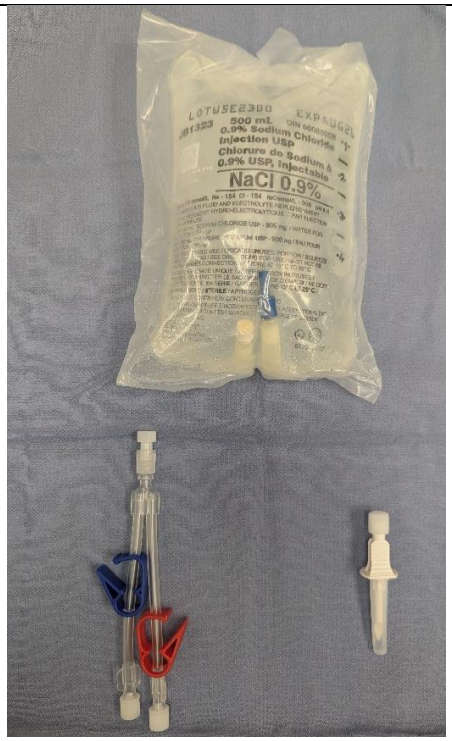
- Our process is similar to our method for re-transfusion and initial connection.
- **DO NOT** choose the recirculation option on the machine. Only choose stop and resume during process.
- After saline re-transfusion, the access and return lines are connected to a 500 ml bag of normal saline.
- The saline bag is hung on the priming hook.
- Blood flow is maintained at 300 ml/min and all other flow rates are set to 0 ml/hr during recirculation.
- This should be a 2-person procedure to reduce the risk of contamination; one person should be CNS/Educator or a CRRT nurse who has previously performed.

Supplies Needed:

- Kit for accessing the catheter (review procedure to ensure aseptic technique)
- Extra chlorhexidine (alcohol free) swabs to ensure adequate cleansing of access, return and limb clamps and rescue line stopcock.
- 500 ml bag of saline
- Single spike
- Y connector with red and blue clamps
- Extra green towel.

PROCEDURAL STEPS: PREPARATION

1. Perform procedural safety pause to review plan with partner nurse.
2. Nurse 1: Manages catheter care/connections. Nurse 2 will manage the machine.
3. Time the procedure to stay within 2-hour recirculation maximum.
4. Nurse 1: Prepares catheter access equipment. Moves access and return clamps close to the catheter before starting. Follows procedure for accessing a dialysis line, and maintains aseptic technique.
5. Nurse 1: Scrubs all connections, rescue stopcock, limb clamps, access and return clamps and all tubing in between. Once cleansed, places sterile field under limbs to access/return clamps.
6. Nurse 1: Lays green towel in close proximity to line. Places saline bag near the top. Places sterile spike and Y connector on green towel. Connects spike/Y connector avoiding contact with end caps.
7. Nurse 1: Performs hand hygiene and changes gloves.
8. Nurse 1: Primes Y connection.
9. Ready to initiate recirculation.



PROCEDURAL STEPS: INITIATION

1. Nurse 2: Ensures roller and slide clamps on rescue line are open
2. Nurse 2: Turns PBP, Patient Fluid Removal, Dialysis and Replacement flow rates to 0 ml/min. Leaves blood flow at 250 ml/min.
3. Nurse 1: Turns rescue line stopcock "OFF" toward the access limb. Close access limb clamp once retransfusion begins to prevent accidental entry of blood post flushing.
4. Nurse 2 will monitor clock and choose "Stop/Stop Treatment" at 65 - 70 seconds (65 seconds at 250 ml/min provides 270 ml of flush; this is sufficient to clear blood regardless of heater tubing type). **DO NOT SELECT RECIRCULATION – only use stop/pause and resume functions during this procedure.**
5. You have 10 minutes to resume treatment before machine will permanently shutdown.
6. Nurse 1: Turns stopcock "off" to 45 degrees, then closes both limb, and access and return tubing clamps.
7. Nurse 1: Disconnects access tubing at the rescue line stopcock (*leaving the rescue line behind*), and connects to the red side of the saline bag Y.
8. Nurse 1: Disconnects the blue return tubing and connects to the blue side of the saline bag Y.
9. Nurse 1: Opens up all 4 clamps (access and return tubing and both limbs of Y), then passes saline bag to Nurse 2.
10. Nurse 2: Hangs the saline bag onto the priming hook on the machine and selects RESUME treatment.
11. Nurse 2: Increases the blood flow rate to 300 ml/min – optimal for preventing alarms.
12. Nurse 1: Completes catheter care.
13. Nurse 2: Confirms blood flow at 300 ml/min and all other flow rates set to 0 ml/hour.

PROCEDURAL STEPS: RECONNECTION

1. Prime a new rescue line with stopcock.
2. Hook patient up using the same technique as for initiation of CRRT.
3. Prepare catheter per procedure, confirming that you can pull-push 10 ml of blood within 3 seconds without difficulty (confirms ability to generate at least 200 ml/min blood flow). Clamp access and return limbs.
4. When ready to hook up, reduce blood flow to 250 ml/min, then stop machine (leave on standby – do not choose retransfuse or recirculate).
5. Move the access and return clamps close to the Y connector on the saline back and close them.
6. Close the clamps on the Y connector of the saline bag.
7. Place the saline bag beside the patient catheter.
8. Connect the rescue line to the RED access tubing (rescue line stays with the access tubing).
9. Connect catheter as per initial setup.
10. Resume flow rates for PBP, Dialysis and Replacement pumps as per orders.
11. Maintain previously tolerated blood flow (250-300 ml/min).
12. Once patient is stable for ~15 minutes, resume patient fluid removal rates.