**Changing CardioHelp Circuit**:

PURPOSE:

To outline the ECLS team responsibilities when switching circuits while a patient is on ECLS.

SUPPORTIVE DATA:

This procedure allows switching of the ECLS patient from an existing CardioHelp circuit to a newly primed circuit. Changing the ECLS circuit during an ECLS run may be indicated in the following incidences:

* Clots
* Circuit wear
* Oxygenator failure
* Elevated plasma free Hgb and evidence of circuit DIC

EQUIPMENT:

* Newly blood primed CardioHelp circuit and cart. May be only crystalloid primed for larger pediatric patients
* 4 circuit clamps of appropriate size
* Sterile ECLS circuit shears (2)
* Sterile 3/8” or ¼” straight connectors (2)
* Alcohol swabs
* Large syringe of flush solution (2) with Jelcos
* Eye and mucus membrane protection
* Gloves
* Ty-gun and bands
* Sterile end caps (3/8”or ¼”).

STEPS:

* Follow CardioHelp crystalloid and blood priming guidelines.
* Bring the newly primed CardioHelp ECLS circuit and cart into place in front of the old CardioHelp ECLS circuit and cart.
* Remove yellow de-airing cap from the de-airing port on the newly primed circuit
* On the newly primed circuit, open the clamshell using **sterile technique** and place (2) 3/8” or ¼” clamps on both the venous and arterial lines. Separate new circuit from clamshell using the quick-action couplings (if present) or by cutting between the clamps.
* Using sterile shears, cut away the quick-action couplings on both the A and V lines (if present), and place 3/8 x ⅜ or ¼ x ¼ straight connectors on both A and V lines. Fill ends with flush solution.
* Take patient off ECLS by turning flow to zero and clamping both the arterial and venous lines near the CardioHelp console.
* Place two circuit clamps approximately 2 inches apart **above the cannula connector luers of the old circuit** on both A and V lines. Swab in between areas of both lines with alcohol and allow to dry.
* With protective face-wear on, cut the A and V tubing in the middle of the clamped areas.
* Airlessly, connect the newly primed venous ECLS line to the old venous ECLS line and remove clamps.
* Airlessly, connect the newly primed arterial ECLS line to the old arterial ECLS line and remove clamps.
* Place patient back on ECMO by removing the venous clamp on the new CardioHelp circuit, and then slowly removing the arterial clamp on the new circuit as you increase ECLS flow back to previous level.
* **Be prepared to straight transfuse 1-2 units of PRBCs immediately to maintain adequate Hgb if new ECLS circuit was not blood primed.** May need to also consider exchange transfusion technique if volume overload is a concern. If exchange transfusion is required, remove equal volumes of blood from ECLS circuit via pre-oxygenator port as PRBCs are transfused into the patient.
* Place ty-bands on all new connections.

DOCUMENTATION:

Document on ECLS Flow Sheet time and reason for circuit change and who performed the procedure. Document procedure in medical progress notes.