

Fluid warmer (Hotline)

PURPOSE:

In context of shock, hypothermia can lead to complications. The fluid warmer can be used for hypothermic patients, patients requiring fluid resuscitation and for blood transfusion.

To minimize transfusion reactions in those patients with antibody mediated transfusion reactions, it is recommended to transfuse blood products using a warmer.

A medical order is required to use a Fluid warmer.
Do not warm platelets or cryoprecipitate.

Blood warmers should be verified by Biomedical services once a year and the warming fluid should be changed at that time.

EQUIPMENT:

Hotline warmer machine
Hotline Fluid warming set
Hotline gas vent (optional)
Disinfectant wipes
Non-sterile gloves

For fluid administration:

BBraun infusomat tubing (with or without burette) or straight IV tubing
BBraun infusomat pump (optional)
IV solution
50 mL syringe (for push-pull technique only)
3 way stopcock (for push-pull technique only)

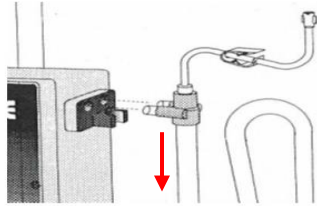
For blood product transfusion (plasma or RBC):

Blood filter
Blood for transfusion
250 mL Normal Saline IV bag
50 mL syringe (for push-pull technique only)
3 way stopcock (for push-pull technique only)

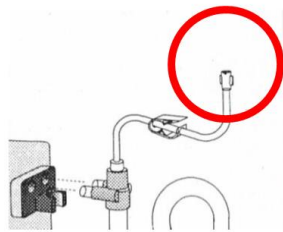
PROCEDURE

- 1) Check that the water level in the water bath reservoir is at least $\frac{1}{2}$ way between the min and max levels.
 - a. If the fluid is low, you must add a mixture of Hydrogen Peroxide and Distilled water. Follow directions at the end of this protocol.
- 2) Make sure the switch is at "OFF" and plug into the power outlet.
 - a. If you turn on the machine prior to having plugged into the machine the fluid warmer tubing, the warming bath solution will spray on the floor.

- 3) Wash hands and don non-sterile gloves.
- 4) Plug the Hotline warming set into the socket on the right side of the Hotline warmer.
 - a. Direct the Hotline warming set tubing downward. If you attempt to insert the wrong way, it will not go in.



- 5) Activate the Power Switch on the left side of the fluid warmer.
 - a. The green system operational light on the display panel will illuminate and the circulating water bath temperature display will begin to increase.
 - b. The circulating water path will automatically prime when the unit is turned on.
 - c. Inspect the patient end of the Hotline warming set tubing for leaks to confirm the integrity of the intravenous pathway.
- 6) Prime IV tubing as per usual procedure.
 - a. If transfusing a blood product, ensure blood filter is connected as per transfusion of labile blood product procedure.
- 7) Connect the IV tubing to the Hotline warming set.
 - a. If using the push-pull technique for rapid infusion of fluid/blood, connect 3 way stopcock between the IV tubing and the Hotline warming set tubing.



- 8) Open the clamp of the Hotline warming set and prime the tubing Hold end of line (maintaining aseptic technique) over the tubing packaging to allow excess saline or blood to drip into.
- 9) Connect Hotline warming set to patient.
- 10) Administer required volume of fluid or blood as ordered.
 - a. If the patient is to receive the entire unit of blood, attach NS IV bag to blood filter and infuse another 50 mL of NS so that the remaining volume of blood in the tubing can be administered to the patient.

POINTS TO REMEMBER

- 1) Do not kink the warming set tubing. Do not restrict water bath circulation through the tubing.
- 2) The temperature indicator should be 36.5°-37°C prior to the initiation of the transfusion. The water bath temperature display will reach 37°C in about 4 minutes.
- 3) The primary temperature control limits the circulating water temperature to 40°C maximum.
- 4) Push-Pull technique using the 3 way stopcock can only be done from the connection above the Hotline warming set.

ALARMS

- 1) **OVER TEMP:** Indicates a malfunction of the primary temperature control system. No fluid warming is taking place. Turn off the power switch and remove from service for repair or replacement.
- 2) **DISPOSABLE:** indicates that the Hotline warming set is not properly installed and fluid warming is not taking place. Check that the Warming set is fully inserted into the socket the right side of the Hotline warmer.
- 3) **ADD WATER:** indicates that additional water bath solution must be added to the Hotline warmer water tank. No fluid warming is taking place.
 - a. To add water bath solution, mix Hydrogen Peroxide 3% (350 mL) with Distilled water (3 500 mL) following instructions on mixing bottle.

AFTER USE

- 1) Turn off the power switch on the left side of the warmer.
- 2) Remove the Hotline warming set.
- 3) Handle and dispose the IV set and Hotline fluid warming set as per usual procedure.
- 4) Wipe down the external surfaces of the Hotline warmer with a disinfecting wipe.