

Baxter RK 2000 Pharmaseal Hypothermia Unit

PROCEDURE:

When the use of a hypo/hyperthermia machine is ordered, the following steps need to be taken to assure safety operation and to prevent injury to the patient.

- A physician's order is required for setting blanket temperature and for continued use of equipment.
- Avoid placing additional heat sources between the patient and blanket.
- Prevent excessive and/or prolonged tissue pressure and shearing forces, especially over bony prominences.
- Keep the area between the patient and the blanket dry.
- Do not tip machine over without first draining the water out and unplugging the power cord.

Preparation for use:

1. Inspect the unit for signs of damage, specifically the power cord and plug. If damaged, return the equipment to Biomedical Engineering for repair.
2. Press the fluid level "check" button to determine fluid level in the machine. If the fluid level is less than $\frac{3}{4}$ full, refill the unit.
3. If more fluid is required, remove the fill port cover located on the handle side on the top of the unit. Add distilled water to the fill port, frequently checking fluid level as described in step two. Stop filling when the water level shows the unit to be full. (If the machine is powered on, an alarm will sound when the unit is full.)
4. Move unit into position and attach power cord to a grounded, hospital-approved power outlet (15 amp rating).
5. Place a Duo-Therm Blanket on the operating table or bed. Connect the extension tube to the machine at the point under the handle labeled "Connect Pad". Be sure to attach one connector to the inlet and one to the outlet. Connect the other end of the extension tube to the Duo-Therm Blanket. Tighten the connection to prevent leakage. Place the patient on the blanket or under the blanket. A second blanket may be placed over/under the patient to increase the thermal transfer to the patient. Re-check the pad and extension hose for kinks or folds.
6. If the patients' temperature is to be monitored, utilize the temperature probe. Connect the 10 foot probe extension cable to the Patient Monitor" jack on the RK-2000 (located under the handle). The other end of the extension cable is then connected to a 400 series thermistor patient temperature probe. This probe should be attached to the patient per the instructions on the probe package.

Operating Instructions

1. The machine will be more effective if one layer of linen is between patient and the blanket.
2. Power on-turn the RK 2000 on with the "Power" switch located under the handle. The unit will undergo an automatic pre-check. At this time the message "Please wait" will be displayed on the graphics screen. When the self-test is successfully completed, the unit will display the "Select Mode" screen.
3. Select mode.

Modes of Operation

There are four modes of operation the RK-2000. They are:

1. **Heat Mode:** This mode of operation allows the operator to circulate heated water at a selected fluid temperature. The operator selects the desired fluid temperature setpoint. The machine will then control the water temperature to that setpoint. This mode also allows the user to monitor patient temperature without having the patient's temperature affect the machine's operation.

To activate the Heat Mode: Press the "Heat" soft key switch. The "Select Temperature Set point" screen will then appear. Select the desired fluid temperature setpoint by using the up or down arrows. When the desired fluid temperature setpoint is displayed, press "Start". The unit will now control the circulating fluid temperature to the desired setpoint.

2. **Cool Mode:** This mode of operation allows the operator to circulate chilled water at a selected fluid temperature. The operator selects the desired fluid temperature setpoint. The machine will control the water temperature to that setpoint. This mode also allows the user to monitor patient temperature without having the patient's temperature affect the machine's operation.

To activate the Cool Mode: Press the "Cool" soft key switch. The "Select Temperature Set point" screen will then appear. Select the desired fluid temperature setpoint by using the up or down arrows. When the desired fluid temperature setpoint is displayed, press "Start". The unit will now control the circulating fluid temperature to the desired set point.

Automatic Mode: This mode of operation allows the operator to select a desired patient temperature. The

machine will then automatically adjust the water temperature to influence the patient's temperature toward the setpoint. In this mode, the patient temperature probe is a critical element of the operating system. If disconnected for sensing a temperature not in the operating range of 27-42 degrees C (81-107) degrees F), the unit will alarm and thermal control will cease until the probe is reconnected.

To activate the Automatic Mode: Ensure that the patient temperature probe is connected to the patient monitor jack located on the right side of the unit. (If the probe is not connected or if it is sensing a temperature not in the operating range of 27-42 degrees C (81-107 degrees F), the automatic mode will not activate and an alarm will sound. For probe connection instructions, see Section, "Preparation for Use"). Press the "Automatic" soft key switch. The "Select Patient Temperature" screen will then appear. Select the desired patient temperature by using the up or down arrows. When the desired patient setpoint temperature is displayed, press "Start". The unit will now control the circulating fluid temperature so as to influence the patient's body temperature toward the selected patient temperature setpoint.

3. **Monitor Mode:** This mode of operation is for monitoring the patient's temperature only. There is no thermal transfer when operating in this mode. For the patient's temperature to be displayed, the patient temperature probe must be connected. If it is not connected, the unit will not alarm. Instead, it will display a message that requests the operator to connect the probe.

To activate the Monitor Mode: Press the "Monitor Only" soft key switch. The patient temperature trend graph will then appear and begin charting the patient's temperature. If a patient temperature probe is not in place, the graphics screen will prompt the user to install a patient probe. In the monitor mode there is no heating or cooling of the fluid.

Patient Management

1. Select set point temperature carefully according to Physician Order, or if the physician does not order a temperature,
 - a) Set the temperature control to 30° C or 86°F (high end of set-point cooling range) MD order required for lower temperature setting.

2. Check patient's skin every 2 hours.
3. Diabetics, incapacitated patients, patients with sensory or circulatory compromise should be monitored more frequently.
4. Check patient's temperature every 15 minutes, and other vital signs every 30 minutes until desired temperature is achieved. If a probe is used, assure the placement of the probe every 2 hours; with a change in position and more often if the patient is restless. The patient's skin integrity should also be assessed.
5. Once the body temperature reaches the parameters ordered by the physician, turn the machine off and remove the probe if one was used.
6. Document on the interdisciplinary progress note:
 - a. Patient temperatures, and method of taking temperature
 - b. Baseline vital signs
 - c. Any untoward effects of treatment
 - d. Setting of cooling blanket
 - e. Length of time patient on cooling blanket.
 - f. Skin Assessment
 - g. Response to treatment and any other interventions