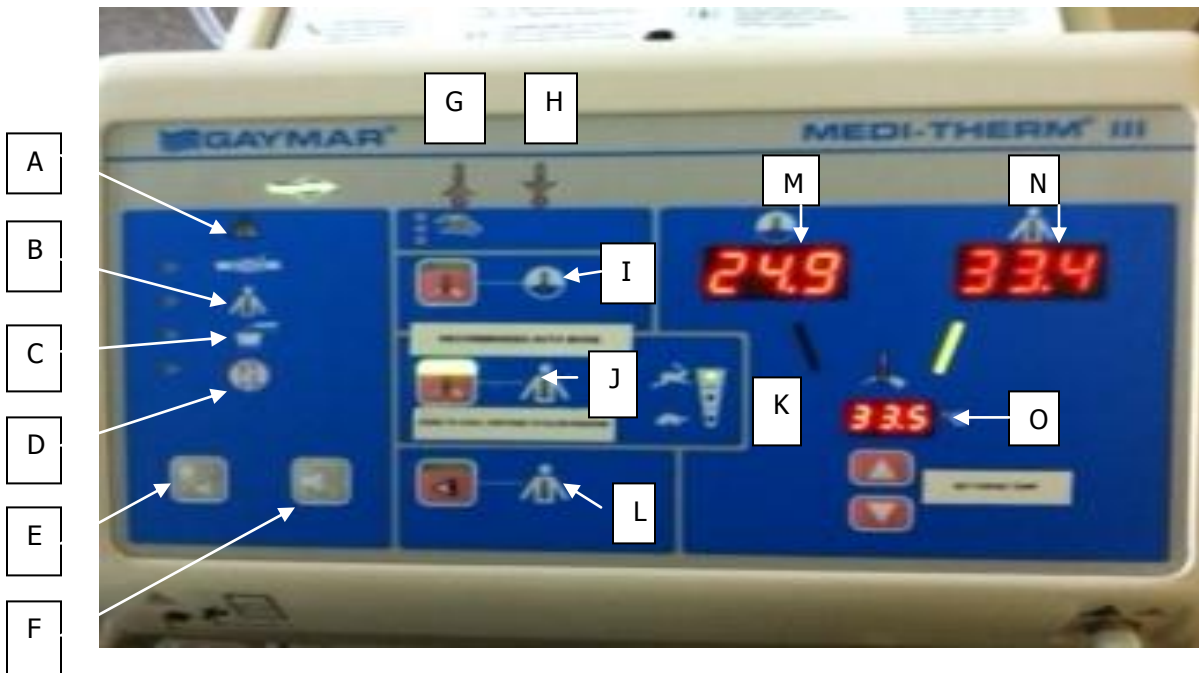# How to use Medi-Therm III hyper/hypothermia system

It operates in one of three modes:

1. Blanket control- the operator sets the desired water temperature of the water circulating through the blanket. The machine heats or cools the water as required to maintain the set point temperature.
2. Patient control- the machine automatically regulates the patient's temperature to the set point. The machine constantly compares the actual patient temperature with the set point value and automatically adjusts the water temperature to achieve that patient temperature.
3. Monitor only- the machine monitors the patient temperature through the patient probe without providing any therapy.

In the event of a power loss, a battery backup circuit will light the POWER LOSS light and sound an audible alarm. Once power is restored the mode of operation and the set points will have to be reselected.

The mode that is used on this unit is the Patient control mode.

A. **Flow OK-** indicates water is flowing adequately

   Check Flow – when light lit up indicates the flow of water to the blanket has been restricted

B. **Check Patient –** indicates the patient probe is sensing an abnormal patient temperature (Below 29⁰ C or above 40⁰C). It may indicate the patient probe has become dislodged, an incorrect probe is being used or a probe has become defective. An audible alarm accompanies this alert

C. **Add Water** – indicates when the water reservoir needs to be filled

D. **Remove from use now**- indicates the Medi-Therm III machine has shut down due to a malfunction. Remove the machine from use.

E. **Test lights**- flashes all indicator lights and digital displays, while sounding an audible alarm

F. **Alarm silence**- temporarily silences the audible alarm. The audible alarm will reactivate in 10 minutes if the condition persists

G. **Warming**- indicates the machine is heating

H. **Cooling**- indicates the machine is cooling

I. **Blanket control-** adjust set point to control water temperature (4⁰C - 41⁰C)

J. **Patient control**- connect patient probe, then adjust set point to control patient temperature (30⁰C - 39⁰C)

K. **Control Option-**cooling/warming adjusted to rapid rate (Hare), moderate rate (in between) and gradual rate (tortoise)

L. **Monitor only-** connect patient probe, then use to monitor patient temperature. No therapy is provided

M. **Water temperature-** this display lights when either patient control or blanket control is selected and shows the water temperature currently being used. When flashing indicates that water temperature is not being maintained within the acceptable limits of the set point temperature, it is accompanied by an audible alarm

N. **Patient temperature-** as measured by the patient probe. This display lights whenever a patient probe is plugged in. When flashing indicates that patient temperature is not being maintained within the acceptable limits of the set point temperature, it is accompanied by an audible alarm
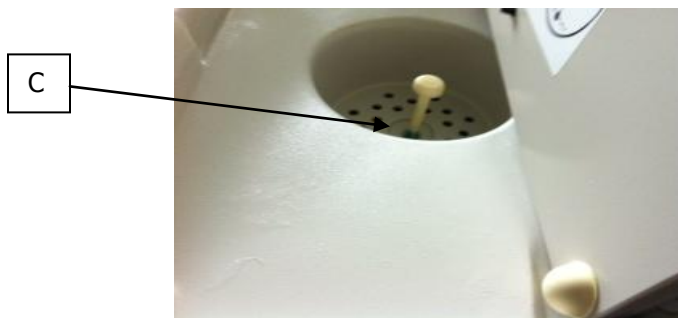
O. **Set point change-** press the ▼ or ▲button to select machine set point. When selecting a temperature outside the normothermic range (36⁰C - 38⁰C) an audible alarm will chime. Press and hold the ▼or ▲ button until the chime stops to access the extended temperature range.
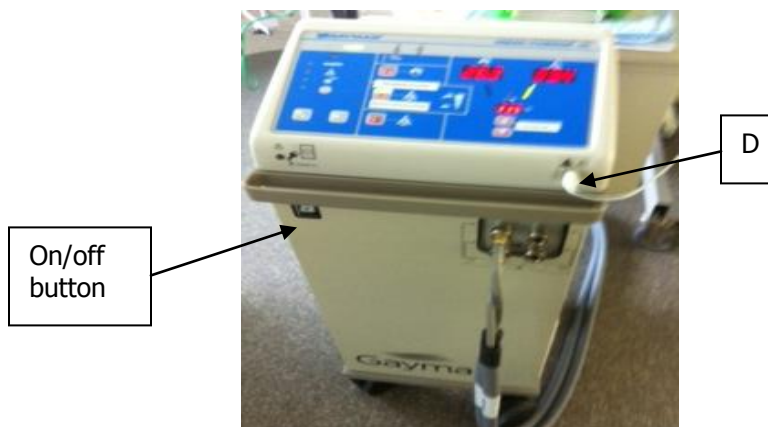
Set Up

1. Connect disposable blanket to machine. Ensure that pinch/slide clamps are closed on the connector hose and on the blanket (A & B).

A

B

2. Lift cover of water fill opening check that the green band on float is fully visible (C) If not visible top up with distilled water till green band visible

C

3. Connect patient rectal temperature probe to the patient probe plug (D

D

On/off button

4. Open all clamps
5. Turn on machine, when first turned on the Medi-Therm III enters its standby mode:
   - The ON/OFF switch will light
   - The machine will beep once
   - The Water, PATIENT and SET POINT temperature displays will show dashes
   - The SELECT MODE heading will flash
6. Select patient control mode- set temperature to 33.5°C
7. Set the Control Option to rapid, as this will ensure the patients temperature is lowered to desired setting within an hour of commencement of cooling

The Control Option defaults to rapid when patient control mode is selected. Select a different control option by pressing the patient control button again.

When cooling the patient:
RAPID - the coldest water is used for cooling- as low as 4°C
MODERATE- water temperature is limited to 15°C below the patient's temperature
GRADUAL – water temperature is limited to 10°C below the patient's temperature
When warming the patient
RAPID – the highest allowable water temperature is used- as high as 41°C.
MODERATE – the patient's temperature will increase at a rate of 1°C in a period of 3 hours
GRADUAL- the patient's temperature will increase at a rate of 1°C in a period of 6 hours

8. RE-WARMING – when 72 hours is up from commencement of cooling, rewarming should be commenced. Increase the set temperature by 0.5°C every 2 hours, set the control option to moderate. When patient temperature reaches 36.5°C the Medi-Therm III can be discontinued and the overhead heater (on the Ohio) can be turned on.

If the patient's temperature does not get to within 0.5°C of the set point after 4 hours the patient display will flash and an audible alarm will sound. This will also flash and alarm if the patient's temperature deviates by 1°C or more from the desired warming rate

9. When finished, turn off the machine, close all pinch clamps before disconnecting the blanket

Trouble shooting

Check flow	• Check for hoses fully inserted, one into return (top) and one into supply (bottom) • Check to ensure all pinch clamps are open • Check for kinked hoses or creased blanket
Check Patient	• Make certain patient probe is fully inserted into the patient probe jack • Check for secure connection to patient (if probe is sensing ambient, alarm will sound) • Check for proper type of probe and adaptor
Add water	• Check to make sure water is at the proper level. If the green band on the float is not visible fill with distilled water until green band is visible
Remove from use now	• Indicates that machine has shut done due to water temperature exceeding the high or low limit, or a system error has been detected. Remove the machine from use immediately and notify ICU tech
Power loss	• Check to make sure power cord is fully engaged into PowerPoint • Make certain that power is available through the points • Reset the circuit breaker by turning machine OFF then On
Blanket/body wrap will not heat	• Check for water circulating through the blanket. Do not fold blankets • Check to make sure the temperature controller is working by adjusting the set point (while in blanket control mode) at least 2°C above water temperature. This should cause the warming indicator to light
Blanket/body wrap will not cool	• Check for water circulating through the blanket. Do not fold the blanket • Check to make sure the rear and side vents are not blocked. Inlet and exhaust grills should be kept clear and clean to allow air to circulate freely • Check to make sure the temperature controller is working by adjusting the set point (while in blanket control mode) at least 2°C below water temperature. This should cause the cooling indicator to light