HOW TO: GUIDES

The Medivance Arctic Sun Temperature Management System for Therapeutic Hypothermia

IN ASSOCIATION WITH

Dot Medical Ltd.

Care of the CRITICALLY ILL
The Journal for Critical Care Professionals

- Surface cooling
- Water immersion without getting wet
- Energy Transfer Pads completely adhere to skin to allow direct conduction for high energy transfer
- Pads can remain in place on the same patient for 72 hours
- Pads can be removed, replaced or repositioned without pulling hair or skin
- A set of pads covers approximately 40% of the body surface area
- Patient temperature control range 33°to 37°C
- Circulating water temperature 4° to 42°C
- Temperature probes: Standard YSI 400 compatible
- Time to Target (gradual rewarming) -0.05° to 0.5°C/hour
- Temperature out feature – echoes patient temperature from the Arctic Sun to an ICU monitor.
- Patient Temperature Trend Indicator – reflects rate of patient temperature change
- Fully independent secondary temperature monitoring
- Data output capabilites
- Flow operates under negative pressure, thereby minimizing the chance of leakage
- Purge feature removes water from the pads at the end of the procedure

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The Medivance Arctic Sun Temperature Management System for Therapeutic Hypothermia

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INTRODUCTION

The Arctic Sun Temperature Management System is intended for monitoring and controlling patient temperature within a range of 33°C (91.4°F) to 37°C (98.4°F)

It can be used for any condition where patient temperature control within a range covering mild hypothermia to normothermia is required. This includes the management of cardiac arrest, and traumatic brain injury, or for accidental/peripoperative hypothermia, and for heat stroke patients.

The product is non-invasive and offers precise temperature regulation.

THE PROCEDURE

A Dot Medical clinical support officer or hospital designated clinical engineer will install and check the Arctic Sun upon installation in the hospital.

When filling the Arctic Sun Control Module during initial installation or when the module is completely empty, obtain 4 litres of sterile or distilled water. Add one vial of Arctic Sun cleaning fluid to the water. This is contained in the kit and will usually be completed by the Dot Medical representative.

The Arctic Sun system operates under negative pressure, which helps the pads to conform to the patients' body and minimises the risk of leaks in the event of accidental puncture of a pad or accidental disconnection of the Fluid Delivery line. In order to ensure negative pressure on the pads at all times, the patient's bed surface should be placed 30–60 inches (75cm–150cm) above the floor.

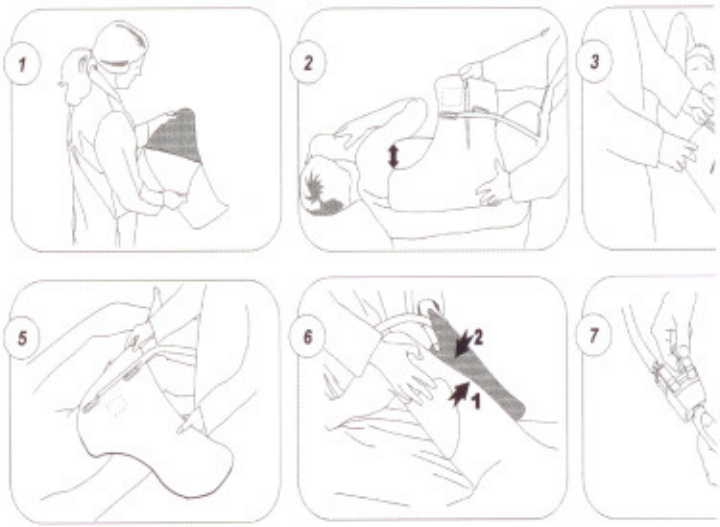
Pre-warming or pre-cooling the Arctic Sun Model 2000

Prior to initiating a treatment, the Model 2000 can be setup and ready for use before connecting the energy transfer pads. After all parameters have been set, press the manual key to pre-cool or pre-warm the water in the reservoir.

Water will begin flowing to prime the internal circuit. The screen will display current water temperature, water target temperature and flow rate. Once pads are attached, the flow rate will be established in the lower right hand corner of the display screen. This will be displayed in L/min (litres per minute)

PLACING THE NEW ARCTIC SU

Log roll patient on his/her side. Obtain the patient's height and weight.



STEP 1: Remove the liner.

STEP 2: With the patient's arm extended, align the top of the back pac imaginary line and place the long end of the pad along the side of the

STEP 3: Wrap the pad from back to front, ensuring that hoses or point

STEP 4: Turn the patient and apply the second back pad to the other s arm. Leave a space on the spine between the two pads.

STEPS 5 and 6: With the hoses pointing downward, align the pad line wrap the longer pad laterally around the leg. Repeat on the second leg

STEP 7: Without touching the wings, connect the pad lines to the man

Arctic Sun Control Panel.

- Allows automatic or manual settings
- Up / down triangle toggles allow temperature setting
- Automatic and manual buttons clearly displayed
- Purge button automatically removes water from pads through a closed system, and stores water in module ready for next patient.

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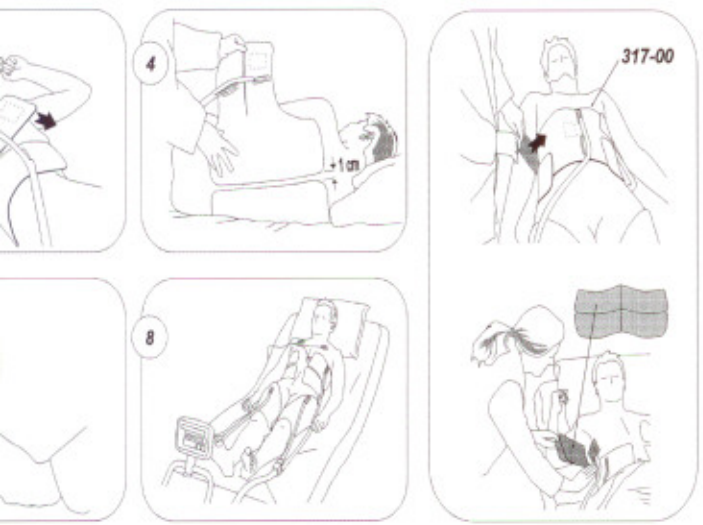
GUIDES

N ENERGY TRANSFER PADS™

Select the appropriate kit size shown on the sizing chart.



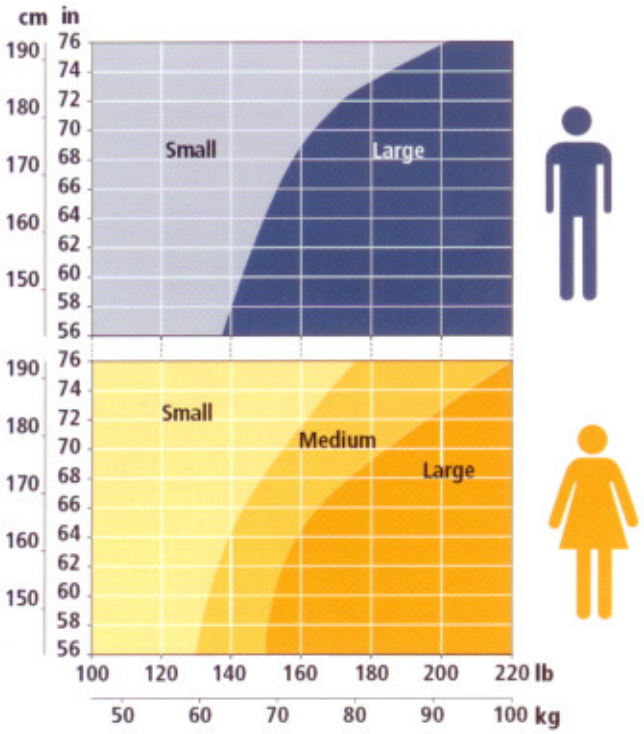
with the axilla. Place the upper portion of the pad along that spine (not directly on the spine).

ng downward and are not under the patient.

ide, aligning the top of the pad with the axilla of an extended

with the knee. Place the shorter end of the pad medially, and

fold block, white side to white and blue side to blue.



Graphs to determine patient Cooling Pad size.

Placing the Arctic Sun Energy Transfer Pads

(SEE IMAGES)

The Arctic Sun System can be used in the operating room, intensive care unit or in Accident and Emergency departments. The patient procedure, application or available body surface area will dictate style, size and the number of pads that will be applied to the patient. Patients are usually sedated during therapeutic hypothermia.

Pads are typically stored at room temperature and may feel cool when applied to the patient. Depending on the objective of the treatment and the patient's level of arousal, the pads can be pre-warmed or pre-cooled prior to treatment.

The pads need to be replaced for patients undergoing prolonged use, several consecutive days of cooling, warming or maintenance of normothermia. At a minimum, pads should be replaced every 72 hours. Additionally pads can be checked for loss of integrity, or adhesion and replaced as necessary.

The Arctic Sun system will control and monitor core temperature based on the temperature probe attached to the Control Module. However it is also helpful to measure patient core temperature from a second site to verify core temperature during therapy.

Due to the underlying medical or physiological conditions, some patients may be more susceptible to skin damage from pressure and heat or cold, for example those with poor tissue perfusion, poor skin integrity due to diabetes or peripheral vascular disease.

Ending a procedure

After achieving overall treatment goal, pads should be emptied. Simply press the 'purge' button on the control display and the water will drain back into the Control Module. The pads can then be disconnected and slowly removed from the patients' skin and pads discarded in accordance with hospital procedure for handling contaminated medical waste.

Summary

- The use of the Arctic Sun Temperature Management System (ASTMS) is easily taught and this method of temperature control can be quickly implemented by nurses, doctors and paramedics.
- Quick induction of hypothermia is important to achieve optimum effects though benefits can still be realised after a delay of up to 8 hours.
- The Arctic Sun System by Medivance consists of the Model 2000 and disposable Arctic Sun Energy Transfer Pads.
- The Arctic Sun Model 2000 consists of a Control Module, Remote display, fluid delivery line, cables and accessories.
- The systemcan be easily transported
- The ASTMS monitors and controls patient temperature precisely within a range of 33°C (91.4°F) to 37°C (98.4°F)
- It can be used for any condition where patient temperature control within a range covering mild hypothermia to normothermia is required.
- ASTMS Eliminates the need for labour intensive ancillary cooling devices such as fans, ice, alcohol baths or ice lavageand
- Provides precise control to avoid complications associated with excessive cooling from overshooting patient temperature targets.

HOW TO: GUIDES

In this issue of the journal, we are continuing the series of How to: Guides, which are specifically aimed at all those who work in intensive care, either on a regular or a short term basis.

Care of the CRITICALLY ILL
The Journal for Critical Care Professionals

Each guide is designed to be detached from the journal and either pinned up in a prominent position or kept handy in a unit file. A whole range of topics will be covered including nursing, medical and equipment-related procedures. The series will prove invaluable as:-

- a definitive guide on how to carry out intensive care procedures for those personnel new to intensive care
- an aide memoire for regular intensive care staff
- a teaching resource for senior staff

FUTURE PLANNED TOPICS INCLUDE:-

- Cardiac output monitoring
- Bedside coagulation monitoring
- Therapeutic body positioning
- Doppler monitoring
- Interpreting capnography
- Use of laryngeal mask
- Haemodialysis
- Ventilation
- Wound care
- Cell saving system
- Sedation scoring system
- Interpretation of blood gases

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Any comments you may have regarding the guides or suggested topics to be covered would be most welcome.