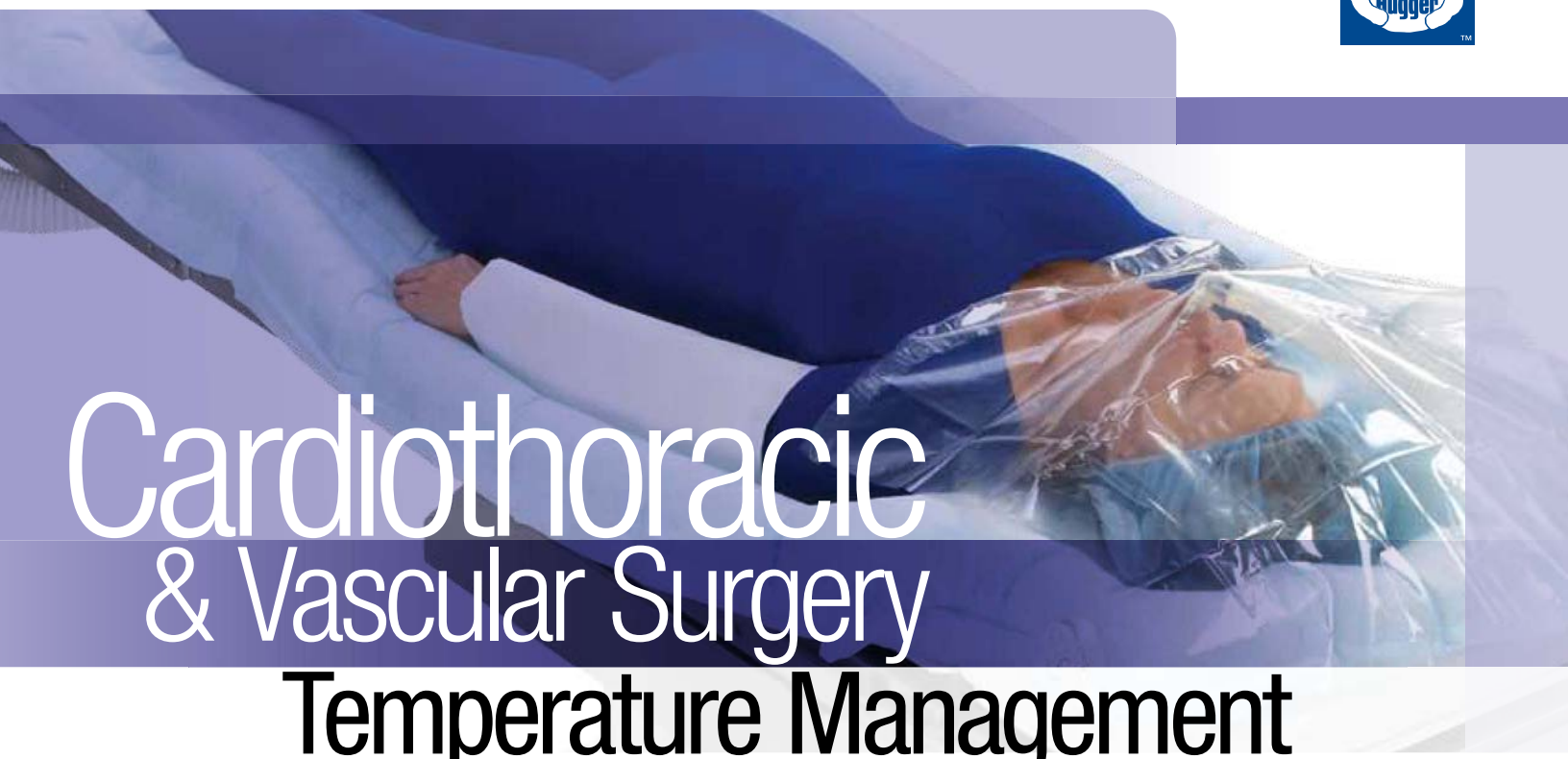
3M Infection Prevention
Cardiothoracic & Vascular Temperature Management



Cardiothoracic & Vascular Surgery Temperature Management Strategies

Warming patients who are undergoing complex surgical procedures should not be complicated. 3M™ Bair Hugger™ therapy offers a number of easy to use blanket designs to actively warm–and rewarm–your most challenging cases, from pediatric to geriatric, without compromising surgical access.

3M Infection Prevention Solutions
Innovation On A Mission

3M™ Bair Hugger™ Therapy

Access From the Start

3M™ Bair Hugger™ therapy offers multiple warming solutions for cardiothoracic and vascular surgeries in pediatric and adult patient populations.

Underbody series blankets are placed on the OR table prior to the patient's arrival. This allows the care provider to focus on the patient and warm from the start of the procedure. As little as 15 minutes of forced-air warming prior to induction can add to the total heat content of the body helping to reduce the effects of redistribution temperature drop[1,2] for procedures using a normothermic temperature management strategy.

The pediatric underbody blanket (model 555) and the large pediatric/small adult underbody blanket (model 550) offer excellent warming solutions for smaller patients. The full access underbody blanket (model 635) is ideally suited for the adult cardiothoracic or vascular surgery patient where unrestricted patient access is a requirement.

Temperature Management for Cardiothoracic and Vascular Surgery

Bair Hugger underbody series blankets will accommodate supine, lateral or prone positions and are suitable for use with either endovascular or open SVG harvesting techniques. Because the full access underbody blanket is in place under the surgical drapes, forced-air warming can be used to complement cardiopulmonary bypass rewarming strategies. The same blanket can be used to continue warming therapy after the patient has been weaned from bypass.

The full access underbody series blanket has been demonstrated to be more effective than a water mattress.[2,3] Forced-air warming can also be used without the risk of thermal injury associated with coductive warming devices as a result of the combination of pressure, time and heat.[4] Unlike with water mattresses, the patient's natural pressure points compress the forced-air underbody blanket preventing heat from reaching potentially ischemic tissue – areas that

Warm every patient

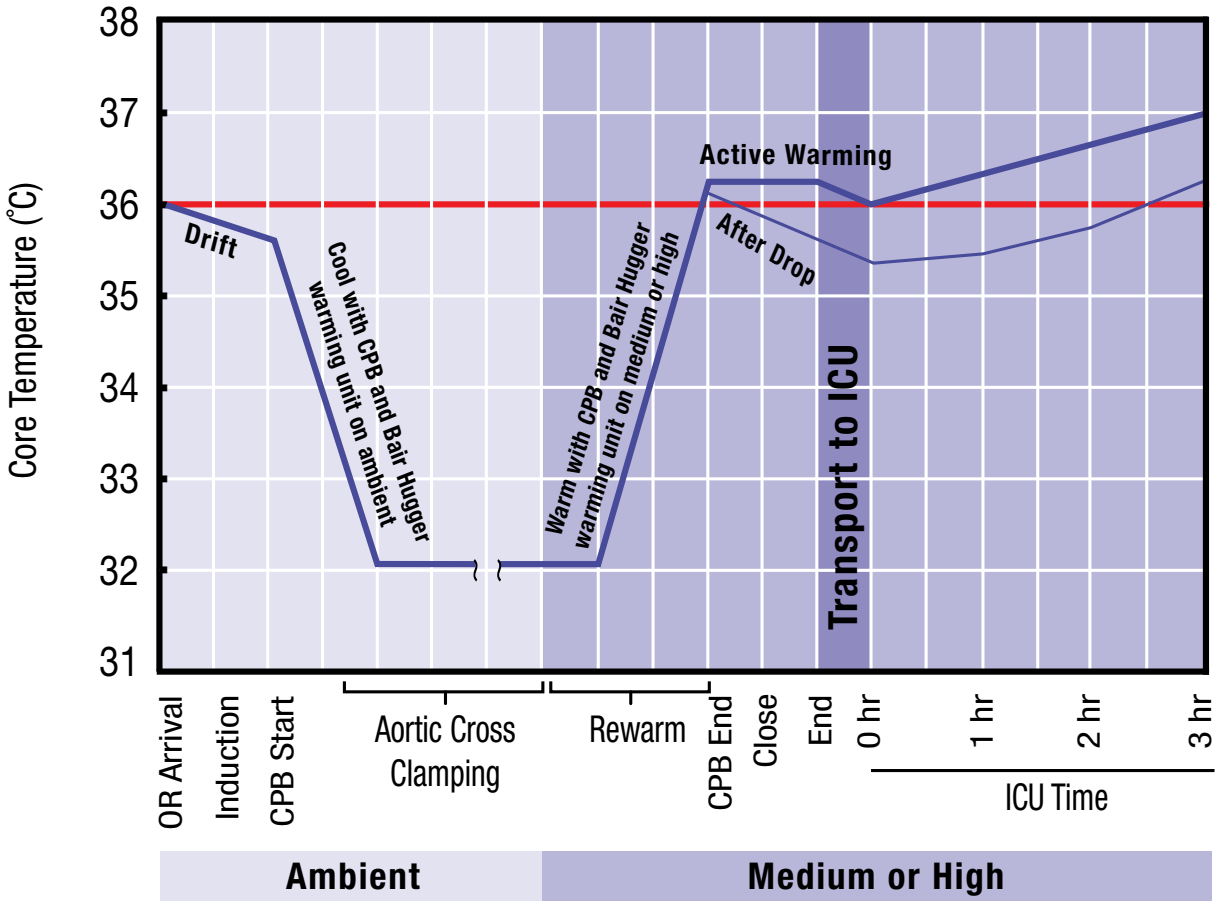
are at risk for pressure sore formation and thermal injury. All Bair Hugger underbody series blankets include unique drain holes that allow excess fluids to pass through the surface of the blanket to the linen below, reducing the potential for skin maceration or breakdown or inadvertent cooling[5] of the surgical patient due to evaporative heat loss.

Bair Hugger temperature management units can be used to both actively warm or cool patients. In hypothermic bypass, the ambient setting may be used to complement CPB patient cooling while the medium and high settings can be used to complement CPB patient rewarming.

Maintaining normothermia with forced-air warming has been shown to reduce the rate of complications such as:[6]

- Surgical site infection rates
- Post operative cardiac events
- ICU time
- Length of hospital stay
- Mortality rates
- Coagulopathy and transfusion of blood product
- Mechanical ventilation time

Temperature Management in Hypothermic Cardiac Surgery[7]



Adapted from: Hohn L, et al. Benefits of intraoperative skin surface warming in cardiac surgical patients. *British Journal of Anaesthesia*. 1998; 80(3): 318-323.

Pediatric Underbody
Model 555

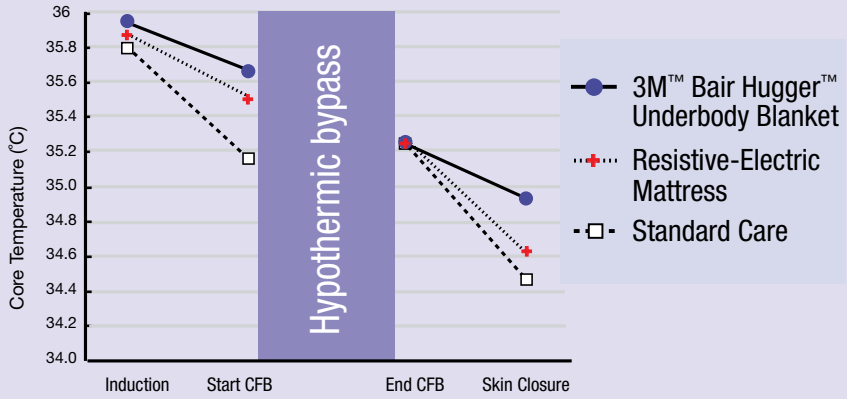
Large Pediatric Underbody
Model 550

Sterile Cardiac
Model 630

Cummberbund design allows for placement onto patient after surgical preparation.

Full Access Underbody
Model 635

External warming methods following hypothermic bypass[8]



Adapted from: Engelen S., et. al. A Comparison of Under-Body Forced-Air and Resistive Heating During Hypothermic Bypass. *ASA Abstract,* 2010. A075.

On- and Off-Pump

Both on-pump and off-pump cardiothoracic and vascular procedures have demanding temperature management requirements.

Whether your surgical strategy involves near normothermic bypass or CPB-induced hypothermia where reducing the severity of post-bypass after drop is of concern, Bair Hugger therapy has demonstrated, flexible temperature management solutions designed to help you meet your patient temperature goals.

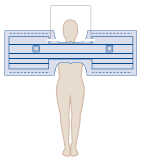
Bair Hugger underbody series blankets:

- Are significantly more effective at reducing unintended hypothermia following hypothermic CABG than resistive-electric type mattresses.[8]
- Are effective at preventing hypothermia and the harmful effects of hypothermia in the early postoperative phase in patients undergoing near-normothermic CABG.[9]
- Have been adopted for use in fast-track cardiac surgery to ensure a core temperature of 36°C.[10]

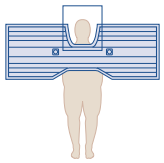
Studies have demonstrated that convective Bair Hugger underbody forced-air warming blankets produce superior intraoperative warming results when compared to conductive under-the-patient water mattresses[1,5,11] or resistive-electric type heating mattress pads.[8]

INTRAOPERATIVE BLANKETS

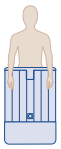
Upper Body
Model 522



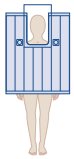
XL Upper Body
Model 523



Lower Body
Model 525

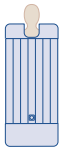


Dual Port Torso
Model 542

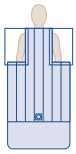


POSTOPERATIVE BLANKETS

Full Body
Model 300

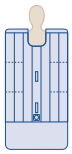


Chest Access
Model 305



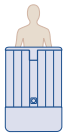
Pediatric
Model 310

Multi-Access
Model 315

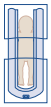


PEDIATRIC BLANKETS*

Small
Lower Body
Model 537



Pediatric
Long
Model 530



*Also see Underbody Series & PACU blankets

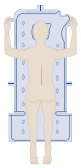
UNDERBODY SERIES

Pediatric
Underbody
Model 555

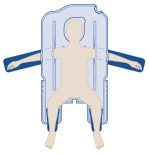
Large Pediatric
Underbody
Model 550

Adult
Underbody
Model 545

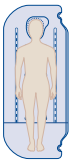
Spinal
Underbody
Model 575



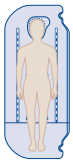
Lithotomy
Underbody
Model 585



Full Access
Underbody
Model 635

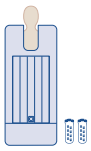


Sterile Full Access
Underbody
Model 637



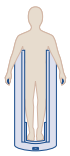
SPECIALTY AND CARDIAC BLANKETS

Outpatient
with booties
Model 110

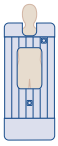


Outpatient
Model 111

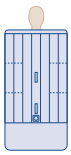
Cath Lab
Model 560



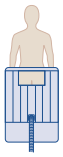
Surgical
Access
Model 570



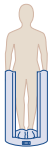
Full Body
Surgical
Model 610



Sterile
Cardiac
Model 630



Sterile
Cardiac Access
Model 645



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8. Engelen S, et. al. A Comparison of Under-Body Forced-Air and Resistive Heating during Hypothermic Bypass. *ASA Abstract*, 2010; A075.
9. Teodorczyk JE, et. al. Effectiveness of an Underbody Forced-Air Blanket in Preventing Postoperative Hypothermia after Coronary Artery Bypass Graft Surgery with Normothermic Cardiopulmonary Bypass. *Critical Care*, 2009; 13 (Suppl 1):P71.
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11. Ong BC. A Prospective, Randomized and Controlled Clinical Trial using Parallel Design to Evaluate the Efficacy of Forced-Air Warming Bair Hugger Full Access Underbody Blanket in Maintaining Body Temperature as Compared to Circulating Water Warming Mattress and Forced-Air Warming Bair Hugger Cath Lab (U-Shape) Blanket in Coronary Artery Bypass Graft (CABG) Surgery. *SGH Proceedings*, 2009; Vol 18, No. 1 (Suppl):S39:1500.

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