

# "The greatest temperature decline occurs during the first hour of surgery."

ASPAN's Evidence-Based Clinical Practice Guideline for the Promotion of Perioperative Normothermia October 2009

**REDISTRIBUTION TEMPERATURE DROP [RTD]** occurs within the first hour after induction of anesthesia and is responsible for the quickest and most significant loss of heat for surgical patients.

**PREWARM TO PREVENT** the adverse effects associated with Unplanned Perioperative Hypothermia [UPH]. Evidence-based practices indicate prewarming for a minimum of 30 minutes, also known as heat banking, can reduce or even eliminate RTD.

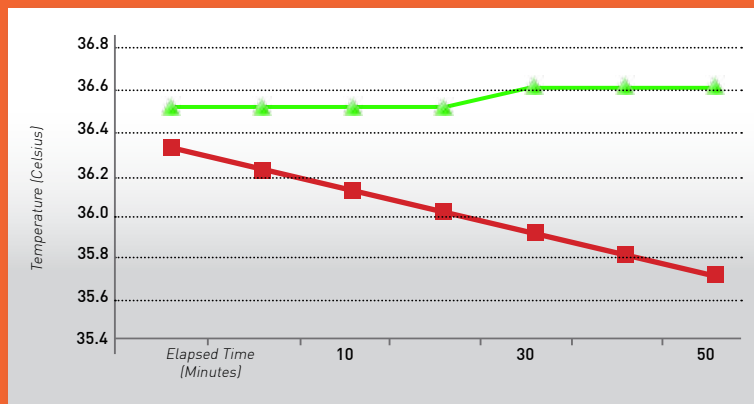
**THERMOFLECT PRODUCTS PROTECT** your patients from the moment they are applied and do not stop until they are removed. The unique heat reflective technology captures and reflects radiant heat while the multi-layer construction prevents convective heat loss.

## EVIDENCE-BASED PRACTICE

The impact of prewarming with Thermoflect patient gowns, prior to orthopedic surgery, was evaluated in a recent study of 60 patients undergoing complete anesthesia for an actual surgery time of 15 to 90 minutes.

Both patient groups were admitted normothermic. Patients using the Thermoflect gown required no additional warming measures and were transferred to PACU with an average temperature of 36.6 degrees Celsius.

The average temperature of the control group decreased from 36.3 to 35.7 degrees Celsius and 16 of the 30 patients required active thermal management to achieve an average temperature of 36.1 degrees Celsius.



[Figure 1] Maintenance of normothermia during relatively minor orthopedic surgical procedures on the extremities; L. Leliveld, Anaesthesiology Department, Surgical Day Treatment Department, Erasmus Medical Centre, Rotterdam, The Netherlands



## THE PROBLEM: PATIENT WARMING

Patient warming is one of the primary concerns of the clinician in healthcare today. Meeting the patient's needs is a challenge when also balancing cost, convenience, equipment, and patient compliance.

## THE SOLUTION: THERMOFLECT

Thermoflect products are the simple, safe and effective solution for all of your patient warming needs including:

- Perioperative Services
- Emergency Department
- Labor and Delivery
- NICU/PICU
- Pediatric Services
- Chronically cold patient populations
- Facility-wide linen management
- Emergency Medical Services [EMS]



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- Free of natural rubber latex
- Nonconductive
- Meets "CFR Part 1610, Standard for Flammability of Clothing Textiles"
- Meets "CFR Part 1615, Standard for Flammability of Children's Sleepwear Sizes 0-6X"
- Meets "CFR Part 1616, Standard for Flammability of Children's Sleepwear Sizes 7-14"



**NOT FOR USE IN MRI**



## PATIENT WARMING

**Prevention** is better than a cure. Thermoflect is about prevention.





“Studies report that one cannot demonstrate any increase in core temperature from forced air warming until after a significant period of time, typically 30 or more minutes.”

“Some Unanswered Questions About Temperature Management”, Jonathan V. Roth, MD; ANESTHESIA & ANALGESIA; Vol. 109, No. 5, November 2009



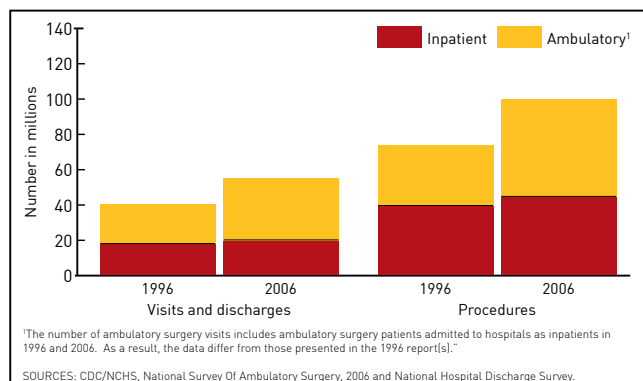
## MIND THE GAP

In 2009 the US Department of Health and Human Services National Center for Health Statistics reported the following estimates based on data collected through the 2006 National Survey of Ambulatory Surgery by the Centers for Disease Control and Prevention’s National Center for Health Statistics (NCHS). The survey was conducted from 1994–1996 and again in 2006.

- 79.4 million surgical procedures
- 32.2 million inpatient surgical procedures
- 47.2 million outpatient surgical procedures

This is the first time that outpatient procedures have exceeded inpatient and many reports anticipate these numbers to grow.

Current reporting requirements and quality measures are focused on patients undergoing procedures with a duration of one hour or more. However, the median operating room time for patients in freestanding and hospital-based outpatient centers is 30 and 50 minutes respectively. This patient demographic is the gap. Thermoflect Heat Reflective Technology products fit easily into existing protocols to effectively “Mind the Gap”.

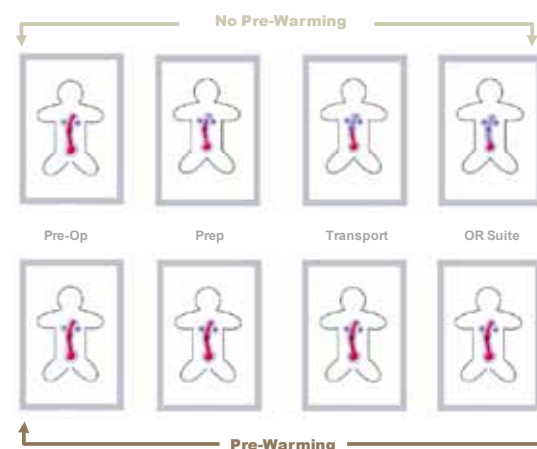


## Ambulatory surgery visits and discharges of hospital inpatients with procedures: United States, 1996 and 2006 (revised)

Source: U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES, Centers for Disease Control and Prevention National Center for Health Statistics National Health Statistics Report - Ambulatory Surgery in the United States, 2006

## BANKING HEAT FOR BETTER OUTCOMES

Effective prewarming begins in the preoperative area. As illustrated below, most patients arrive normothermic. They immediately begin to lose heat and can arrive in the OR suite hypothermic and compromised. This is especially important in shorter duration procedures such as outpatient surgery as there is frequently not enough time to bring the patient back to normothermia intraoperatively.



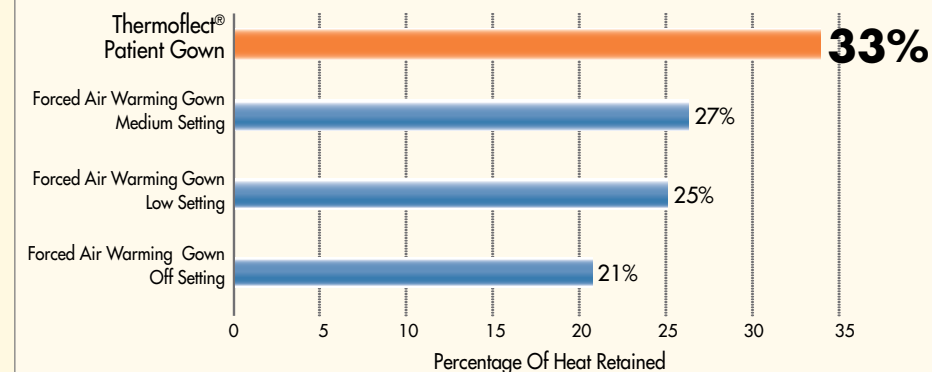
## SIMPLE, SAFE, EFFECTIVE

Thermoflect is a simple solution for patient warming that utilizes NASA pioneered science instead of electricity. The innovative Thermoflect material reflects a patient’s endogenous heat, banking it, while preventing convective heat loss [wind chill]. The material is lined with a soft, patient-friendly inner surface.

- Thermoflect products are cost-effective, ultra-lightweight and move with the patient throughout the perioperative journey.
- Thermoflect is so trusted, it has become part of the US Military’s Hypothermia Prevention Protocol.
- Thermoflect has proven efficacy in a variety of applications, including healthcare, Emergency Medical Services [EMS] and survival gear.

## Raising The Bar And Reducing Costs

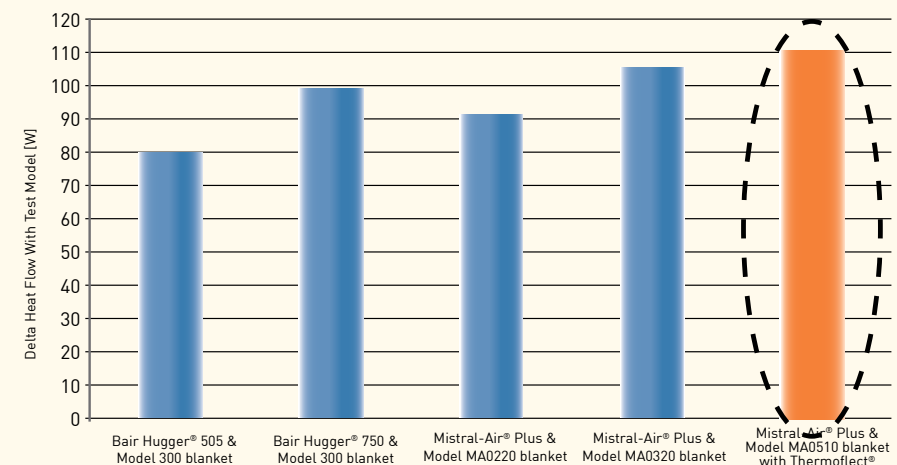
Thermoflect® Patient Gowns Reduce Heat Loss by 33%



Testing performed by TSCI using the following equipment and products: Heat Transfer Test Model, Flow Test Rig, 2x PT100 sensor for water inlet and outlet temperature, 1x copper plate with PT100 sensor for environment temperature, 1x Pico PT104 data logger, Laptop, Thermoflect patient gown Model 5145-500, Standard Bair Paws® Gown. Bair Paws® is a registered trademark of Arizant Healthcare Inc.

## Enhanced Performance

Thermoflect® In Conjunction with Forced-Air Warming



Testing performed by TSCI using the following equipment: Heat Transfer Test Model, Flow Test Rig, 2x PT100 sensor for water inlet and outlet temperature, 1x copper plate with PT100 sensor for environment temperature, 1x Pico PT104 data logger, Laptop. Mistral-Air® is a registered trademark of The Surgical Company International B.V. Bair Hugger® is a registered trademark of Arizant Healthcare Inc. Corporation Minnesota 10393 West 70th Street Eden Prairie Minnesota 55344

Thermoflect Heat Reflective Technology is available in a wide range of products-blankets, caps, patient gowns, staff apparel and more. For a complete product list, visit [thermoflect.com](http://thermoflect.com).

**PUT THERMOFLECT TO WORK FOR YOUR PATIENTS.**

Call 800.826.4490 or visit [www.thermoflect.com](http://www.thermoflect.com)