Effect of Prewarming on Inadvertent Hypothermia and Thermal Comfort
Primary Investigators: Kathryn Mercado BSN RN, Denise Rainier RN MBA BSN
MemorialCare Long Beach Medical Center, Long Beach, California
Co-Investigators: Adrianna Medina RN CNOR, Marci Trump MSN RN CNOR,
Janeen Lozada BSN RN CPAN, Peggy Kalowes PhD RN CNS FAHA

Introduction: Inadvertent perioperative hypothermia (IPH), where core body temperature is
less than 36°C or 96.8°F, occurs in 26-90% of patients undergoing elective surgery. This
preventable anesthesia- and surgery-related complication affects patients’ outcome and is
associated with increased risk for surgical site infections (SSIs), bleeding, blood transfusions,
and decreased patient thermal comfort.

Identification of the problem: Even mild IPH can cause significant patient complications,
increasing health care costs postoperatively (PO).

EBP Question/Purpose: In colorectal/orthopedic surgical patients, does preoperative warming
with a forced-air warming (FAW) gown, effect occurrences of IPH, reducing PO SSIs and blood
transfusions, while improving patient thermal comfort and anxiety?

Methods/Evidence: Deming’s PDSA Cycle (Plan-Do-Study-Act) model was used to guide our
project. A FAW gown was initiated pre-operatively for 30-minutes and continued intra- and
post-operatively. Baseline and post-intervention data were obtained regarding SSI and blood
transfusion rates, as well as nurses’ knowledge of peri-operative patient warming and the
impact on patient outcomes. Patients’ perception of ‘Thermal Comfort’ and Anxiety during their
perioperative experience was measured using the Thermal Comfort Inventory (TCI) Scale, which
used a Likert scale to measure the patients’ thermal comfort and anxiety, and a Numeric Visual
Analog Scale (NVAS) was used to rate overall thermal comfort. Staff were educated related to
the project and protocol, as well as through staff huddles and peer-to-peer interactions in each
perioperative area. A brochure about the warming gowns was developed to give patients and
family members.

Significance of Findings/Outcomes: Our study results aligned with previous research outlining
the benefits of preoperative warming. Comparing pre- to 30-day post-warming data, there was
a decrease by 26% of SSIs, as well as a 49% reduction in blood transfusions among high-risk
surgical patients (spinal, colorectal, and total joint patients). TCI questions related to
temperature showed a slight increase in thermal comfort and decrease in anxiety. The NVAS
Pre/Post FAW showed an 8% increase in overall thermal warmth, and a correlation between
patient satisfaction and level of warmth.

Implications for perianesthesia nurses and future research: Hospitals can provide safer care
for surgical patients by adhering to AORN and ASPANs EBGs regarding perioperative warming to
prevent IPH and its negative outcomes.