HOT TOPIC Warmed patients leave your facility happier and healthier.

Pamela Bevelhymer, RN, BSN

How Much Do You Know About Hypothermia?

The risks go well beyond low scores on patient satisfaction surveys.

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Warm patients are happy patients, but they're also protected from potentially dangerous complications that can occur when the core body temperature dips below 36°C. Quiz yourself on the dangers of hypothermia to ensure you're doing all you can to keep patients safe before, during and after surgery.

WHEN IT COMES TO PREVENTING
HYPO-THERMIA
ARE YOUR PATIENTS COVERED?

Maintenance of normothermia is critical before, during and after surgeries. Yet clinical studies of current warming measures show that 32% of all patients entering the PACU are hypothermic. And that's a significant problem.

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The first hour of general anesthesia drops the body's core temperature by roughly _____.

a. 0.5°C to 1.0°C
b. 1.0°C to 1.6°C
c. 1.6°C to 2.0°C
d. 2.0°C to 2.6°C

Answer: b

General anesthesia causes vasodilation, which lets the warmer blood flow away from the body's core and mix with blood from the cooler periphery. As the blood circulates, it cools until returning back to the heart, where it will cause a drop in core temperature. This decrease in temperature during the first hour of general anesthesia is called redistribution temperature drop. Pre-heating patients with passive or active warming, even if they're not hypothermic in pre-op, will help to counteract some of the initial heat loss brought on by anesthesia induction.

What percentage of patients are hypothermic when entering the PACU?

a. 25%
b. 35%
c. 50%
d. 75%

Answer: c

Unintentional hypothermia is very common in the early post-op period. In fact, only approximately half of all patients entering the PACU have core body temperatures of 36°C. Hypothermia can be prevented by actively warming patients before, during and possibly after surgery, and taking precautionary measures throughout the perioperative process.

For example, only expose the surgical site to the elements in the OR, placing blankets and drapes over the rest of the body. Keeping the patient's head and feet covers on throughout surgery also limits heat loss). Employ active warming. Newer custom drapes and gowns that attach to forced-air units allow for warming to continue while giving surgeons the access they need to surgical sites. Tabletop heating solutions warm patients without restricting access to patients. Using fluid warmers to heat intravenous fluid to roughly 37°C can prevent the 0.25°C decrease in temperature caused by every 1 liter of IV solution administered at room temperature.

A gloved hand is not a good thermometer. Fluid that's too warm can risk patient safety and fluid that's too cold can contribute to unintentional hypothermia. Fluid temperature matters.

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Patients who are hypothermic during colorectal surgery are 3 times as likely to suffer a surgical site infection.

a. true **b.** false

Answer: a

Hypothermia can increase patients' susceptibility to surgical site infections by causing vasoconstriction and impaired immunity. Hypothermia limits the body's immune function and decreases the cutaneous blood flow, which reduces tissue oxygen delivery. This in turn increases the chance of a wound infection and also impairs the wound-healing process. As mentioned, vasoconstriction occurs when the core body temperature decreases, which is a protective mechanism to divert blood to the center of the body and help maintain the normal body temperature. The reduction of nutrient and oxygen supply to wounds will increase the frequency of surgical site infections.

Drug metabolism is affected when the body's core temperature drops by _____.

a. 1.0°C **c.** 3.0°C
b. 2.0°C **d.** 4.0°C

Answer: a

Unintended hypothermia can alter the effects of many drugs, such as muscle relaxants and inhalation and intravenous anesthetic agents. Hepatic and renal blood flow can be diminished with mild hypothermia, which in turn will decrease metabolism and drug excretion, while increasing drug effects. Increasing the impact of sedatives or muscle relaxants, for example, can extend a patient's time in recovery, delay discharges and have a negative impact on efficient patient flow and perhaps your bottom line.

A 2.0°C drop in core body temperature can increase blood loss by _____.

a. 100 ml
b. 250 ml
c. 400 ml
d. 500 ml

Answer: d

Mild hypothermia reduces platelet function and decreases activation of the coagulation cascade. Therefore, hypothermia can increase blood loss and require transfusions during surgery. Shivering post-operatively can cause an increase in oxygen demand, bleeding times and blood viscosity, and contribute to a risk for metabolic acidosis, along with hyperventilation and hypoxia.

The hoses of forced-air warming units can be used without attaching them to a custom gown or blanket, as long as the patient is closely monitored.

a. true
b. false

Answer: b

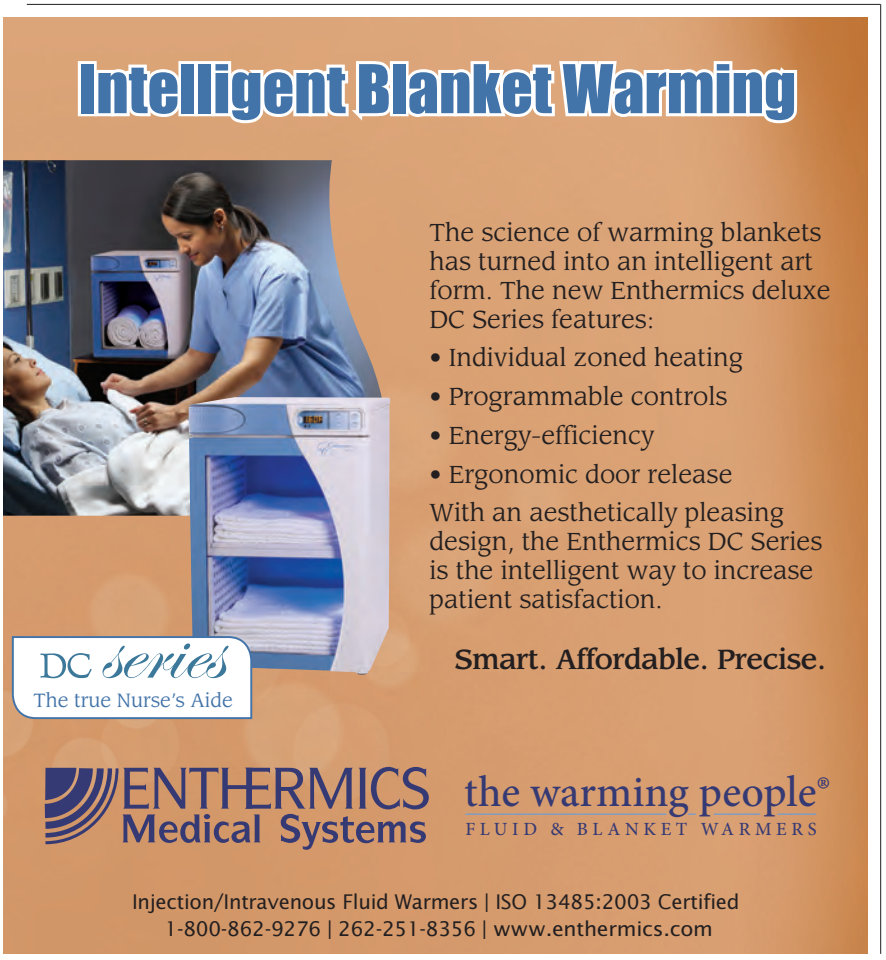
Never use the hose of a forced-air warming unit without attaching it to the custom gown or blanket. That should go without saying, but some facilities remain oblivious to the practice's very real dangers. "Free hosing" concentrates a higher temperature and airflow to the patient, which can easily cause a burn. It is important to always follow manufacturers' recommendations when using any warming device.

Initial ambient OR temperature should be set no lower than _____ to limit hypothermia risk.

a. 73°F
b. 72°F
c. 70°F
d. 68°F

Answer: a

Keep OR temperatures set at 73°F whenever possible. This will improve patients' comfort when they're first wheeled into the room and help ensure they remain normothermic when exposed to the temperature-dropping effects of anesthesia and heat loss due to skin exposure and open surgical cavities. After the important first 60 minutes of surgery, when patients are at highest risk of hypothermia, core temperatures tend to stabilize, so room temperature settings can be lowered slightly for limited periods based on a collaborative decision among the surgical team (as long as the case doesn't involve patients at heightened risk of hypothermia, such as neonates, the elderly, and patients with low BMI or circulatory compromise).



Blanket warming units should be set no higher than _____.

a. 110°F
b. 120°F
c. 130°F
d. 140°F

Answer: c

Nurses and the anesthesia provider must complete an accurate assessment of patients before applying a warmed blanket, including checking for history of vascular disease, perfusion and cardiac output status. They must also consider the surgery's length. Although blanket warming unit manufacturers suggest a maximum temperature of 130°F in order to prevent burning or overheating the patient, your staff might determine that the maximum temperature should be set even lower if a patient has compromised circulation or requires warming for an extended period of time during longer cases.

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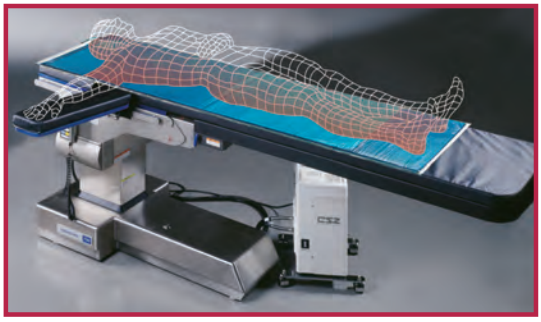

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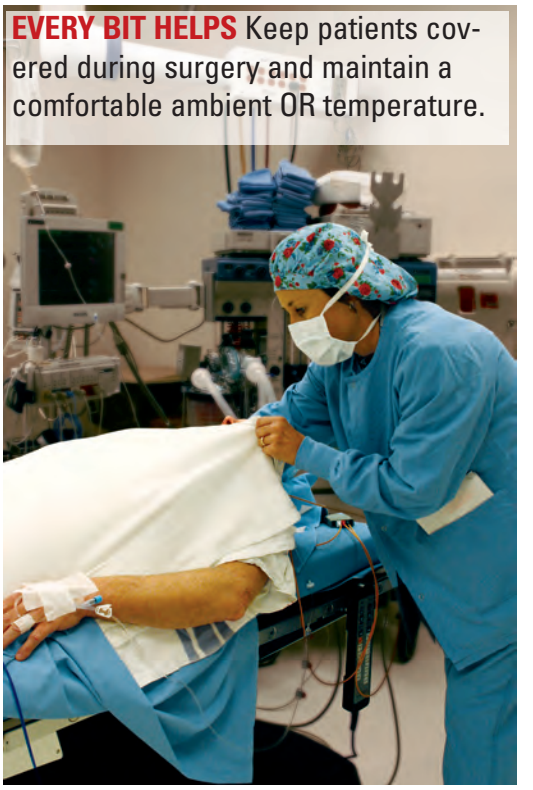

EVERY BIT HELPS Keep patients covered during surgery and maintain a comfortable ambient OR temperature.

Active warming should be used during cases lasting longer than _____.

a. 30 minutes

b. 45 minutes

c. 60 minutes

d. 90 minutes

Answer: c

The active warming of patients should be part of any surgery that lasts longer than 60 minutes, according to the Surgical Care Improvement Project and the Physician Quality Reporting Initiative. A patient's core temperature is most likely to drop during the first hour of surgery — by 1°C to 1.6°C, according to some estimates — but risk of hypothermia increases the longer surgery lasts. Remember, to comply with SCIP Measure 10, you must document at least 1 normothermic temperature reading within the 30 minutes immediately before and the 15 minutes immediately after anesthesia end time.

There is clear evidence that warmed patients have far better surgical outcomes than unwarmed ones. They have fewer infections, faster emergence from anesthesia, better comfort and shorter stays in recovery. Warm patients are also more satisfied. Therefore, this gesture of warming the patient can go a long way toward patient satisfaction. **OSM**

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