

GUIDELINE FOR PREVENTION OF UNPLANNED PATIENT HYPOTHERMIA

The Guideline for Prevention of Unplanned Patient Hypothermia has been approved by the AORN Guidelines Advisory Board. It was presented as a proposed guideline for comments by members and others. The guideline is effective November 15, 2015. The recommendations in the guideline are intended to be achievable and represent what is believed to be an optimal level of practice. Policies and procedures will reflect variations in practice settings and/or clinical situations that determine the degree to which the guideline can be implemented. AORN recognizes the many diverse settings in which perioperative nurses practice; therefore, this guideline is adaptable to all areas where operative or other invasive procedures may be performed.

Purpose

This document provides guidance for assessing patients for factors associated with unplanned intraoperative hypothermia, monitoring patient temperatures, preventing unplanned perioperative patient hypothermia, and developing policies and procedures and education for perioperative personnel related to maintaining patient normothermia.

Core body temperature is normally tightly regulated by the body, but this regulatory mechanism is altered by general, epidural, and other regional anesthetic agents and by environmental factors during the perioperative experience that can result in unintentional hypothermia.¹⁻³ Unplanned patient hypothermia may contribute to patient complications (See Recommendation III).

General anesthesia inhibits tonic vasoconstriction of the peripheral vasculature, causing vasodilation and loss of core warming. During the first hour after induction of general anesthesia, the core temperature can decrease from 0.5° C to 1.5° C (0.9° F to 2.7° F).^{1,4-6} Epidural and spinal anesthesia cause vasoconstriction and shivering to a slightly lesser degree, depending on the level of the anesthetic block.^{1,4,6}

Environmental factors that contribute to unplanned intraoperative hypothermia include low perioperative room temperatures, less clothing, and other factors unique to surgery that promote excessive heat loss (eg, administration of room temperature IV and irrigation fluids, evaporation of skin-preparation solutions, air movement).^{1,6} These environmental factors contribute to heat loss through four types of mechanisms: radiant, conductive, evaporative, or convective.⁷⁻⁹

The temperature value used to define hypothermia varies among sources, but it is frequently stated as lower than 35° C or 36° C (95° F or 96.8° F) and may be further defined as mild (32° C to 35° C [89.6° F to 95° F]), moderate (28° C to 32° C [82.4° F to 89.6° F]),

or severe (< 28° C [$< 82.4^{\circ}$ F]).⁸ Hypothermia occurs during many types of surgical procedures.^{10,11}

In a descriptive study, Steelman et al¹² identified prevention of hypothermia as one of the top 10 patient safety concerns for perioperative RNs. In this study, AORN members employed in ambulatory and hospital settings (N = 37,022) received an electronic survey. Of the 3,137 returned surveys that contained complete information, 966 respondents (30.8%) identified prevention of hypothermia as a high priority.

Professional guidelines authored by the Best Practice in General Surgery Committee, University of Toronto¹³; the American Society of PeriAnesthesia Nurses (ASPAN)¹⁴; the Enhanced Recovery After Surgery Society¹⁵⁻¹⁷; and the National Institute for Health and Clinical Excellence (NICE)¹⁸ also recognize the importance of preventing perioperative hypothermia. Hypothermia may cause multiple complications, such as adverse myocardial outcomes, altering the pharmacodynamics of anesthetics and other medications, thermal discomfort, increased length of stay in the postanesthesia care unit (PACU), and shivering.²

The following topics are outside the scope of this guideline:

- planned, intentional, or therapeutic hypothermia;
- rewarming after an intentional or accidental hypothermic event;
- pharmacological agents used for prevention of hypothermia (eg, amino acids, fructose, carbohydrates);
- cost-benefit analyses of treatment methods;
- treatment for shivering;
- treatment for accidental or extreme hypothermia related to trauma or conditions outside of a health care facility; and
- care and treatment for patients experiencing a malignant hyperthermia crisis. For guidance in treating malignant hyperthermia, readers should contact the Malignant Hyperthermia Association of the United States (MHAUS) Hotline at (800) 644-9737.

Evidence Review

A medical librarian conducted a systematic literature search of the Ovid MEDLINE® and EBSCO CINAHL® databases on August 23 and September 4, 2013, respectively, and limited results to meta-analyses, systematic reviews, randomized controlled and non-randomized trials and studies, reviews, and guidelines. The librarian also conducted a non-systematic search of Scopus® on September 13, 2013. All searches were limited to literature published in English between January 2007 and the search date. At the time of the initial search, the librarian also established weekly alerts on the topics included in the initial search. The librarian later added terms

