Recommended Practices for Preoperative Patient Skin Antisepsis

The following recommended practices for preoperative patient skin antisepsis were developed by the AORN Recommended Practices Committee and have been approved by the AORN Board of Directors. They were presented as proposed recommendations for comments by members and others. They are effective January 1, 2008. These recommended practices are intended as achievable recommendations representing 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 recommended practices can be implemented. AORN recognizes the various settings in which perioperative nurses practice. These recommended practices are intended as guidelines adaptable to various practice settings. These practice settings include traditional operating rooms, ambulatory surgery centers, physician's offices, cardiac catheterization laboratories, endoscopy suites, radiology departments, and all other areas where surgery may be performed. The reader is referred to the Perioperative Nursing Data Set (PNDS) for explanation of perioperative nursing diagnoses, interventions, and outcomes.[1]

Purpose

These recommended practices provide a guideline for achieving skin preparation of the surgical site. The goal of preoperative preparation of the patient's skin is to reduce the risk of postoperative surgical site infection by removing soil and transient microorganisms from the skin; reduce the resident microbial count to subpathogenic levels in a short period of time and with the least amount of tissue irritation; and inhibit rapid, rebound growth of microorganisms. The following recommended practices are considered established guidelines for perioperative practice.

Recommendation I

Patients undergoing open Class I surgical procedures below the chin should have two preoperative showers with chlorhexidine gluconate (CHG) before surgery, when appropriate.[2]

The act of washing and rinsing removes microorganisms from the skin. Some organisms may be difficult or impossible to kill with the application of CHG alone.

Staphylococcus aureus is the most common organism causing surgical site infections.[2,3] In 2003, 64.4% of health care-associated *Staphylococcus aureus* infections were from methicillin-resistant *Staphylococcus aureus* (MRSA).[4,5] Many surgical site infections result from colonization of the surgical site with the patient's own flora; and colonization with *Staphylococcus aureus* is a known risk factor for surgical site infection.[2,6,7] Clinical trials support the use of preoperative antiseptic showers to reduce the number of microorganisms on the skin, including *Staphylococcus aureus.*[8-11] In 1999, the Centers for Disease Control and Prevention recommend requiring patients to "shower or bathe with an antiseptic agent at least the night before the operative day" (Category IB).[2]

I.a. Unless contraindicated, patients should be instructed or assisted to perform two preoperative baths or showers with CHG before surgery to reduce the number of microorganisms on the skin and reduce the risk of subsequent contamination of the surgical wound.

I.a.1. Four percent CHG is more effective than povidone-iodine or soap, and more than one shower is necessary to achieve maximum antiseptic effectiveness.[8,9] One preoperative shower with 4% CHG was found to be twice as effective in reducing skin bacterial flora as showering with nonmedicated soap.[3] Two showers with 4% CHG were found to result in lower microbial counts than showers with bar soap, medicated soap, or povidone-iodine.[8,9] This greater reduction in microbial counts persisted for more than 11 hours.[8] One randomized clinical trial found two consecutive showers or baths with 4% CHG resulted in lower surgical site infection rates than bar soap (ie, 9% versus 12.8%).[9] Showering three times with 4% CHG was found to reduce skin flora 20-fold preoperatively and to lower bacterial counts of the incision taken at the end of the procedure.[10]

Researchers studied the effects of preoperative showering with 4% CHG and povidone-iodine on skin microbial counts of patients colonized with *Staphylococcus aureus.* Two consecutive showers with 4% CHG the evening before surgery reduced microbial counts in the subclavian and groin areas; however, povidone-iodine had little effect on colonization of the groin. Showering both the evening before and the morning of surgery with 4% CHG reduced the bacterial count further at both sites; povidone-iodine provided inconsistent results; and showering with lotion soap increased the colony counts in both the subclavian site and groin.[11]

