With over 1.1 million procedures done in 2008, knee and hip arthroplasty are two of the most commonly performed surgeries in the US.\(^1\)

Knee arthroplasty surgical site infection (SSI) rates range from 0.68% to 1.60% and hip arthroplasty SSI rates range from 0.67% to 2.4% depending on patient risk.\(^2\)

At these rates, between 6,000 and 20,000 SSIs occur annually in hip and knee replacements.

The number of hip and knee arthroplasties will likely rise substantially in coming years due to an aging population staying more active.\(^3\)

More than 15 states have mandated SSI reporting for arthroplastic surgery.

**Evidence suggests three new practices to prevent surgical site infections in patients undergoing hip and knee arthroplasty.**

The Institute for Healthcare Improvement (IHI) now recommends an Enhanced Surgical Bundle over and above the preventive practices recommended by the Surgical Care Improvement Project (SCIP):

- Use an alcohol-containing antiseptic agent for preoperative skin preparation
  - CHG plus alcohol
  - Iodophor plus alcohol
- Ask patients to bathe or shower with chlorhexidine gluconate (CHG) soap for at least 3 days prior to surgery
- Screen patients for *Staphylococcus aureus* (SA) carriage and decolonize SA carriers with 5 days of intranasal mupirocin and at least 3 days of CHG prior to surgery

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EVIDENCE SUPPORTING THE ENHANCED SURGICAL BUNDLE

Use an alcohol-containing antiseptic agent for preoperative skin preparation

Preoperative skin preparations that combine alcohol with agents that have long-acting antimicrobial activity appear to be more effective at preventing SSI than povidone-iodine alone. A randomized, double-blind, placebo-controlled study of patients undergoing clean-contaminated surgery found that CHG plus alcohol preoperative skin antisepsis was associated with significantly lower superficial and deep SSI rates than povidone-iodine.


A sequential intervention at one hospital comparing the effects of three different skin preparations on SSI rates found that the use of an iodophor plus alcohol and use of povidone-iodine followed by alcohol was associated with lower SSI rates than use of chlorhexidine plus alcohol.


Ask patients to bathe or shower with CHG soap for at least 3 days prior to surgery

A Cochrane Systematic Review that included data from 7 RCTs reported no clear evidence that CHG bathing reduced the risk of SSI, although most studies used only 1-2 applications of CHG washes.

Webster J, Osborne S. Preoperative bathing or showering with skin antiseptics to prevent surgical site infection. Cochrane Database of Systematic Reviews 2007, Issue 2. Art. No.: CD004985. DOI: 10.1002/14651858.CD004985.pub

CHG bathing or showering reduces the number of microorganisms on skin that can lead to SSI. This is the rationale for the 1999 Hospital Infection Control Practices Advisory Committee recommendation that patients be required to shower or bathe with an antiseptic agent at least the night before surgery.


Studies show that repeated use of CHG soap for bathing or showering results in progressive reductions in bacterial counts on the skin and that patients may benefit from bathing or showering with CHG soap for at least 3 days before surgery in order to achieve the most benefit.


Screen patients for Staphylococcus aureus (SA) carriage and decolonize SA carriers with 5 days of intranasal and at least 3 days of CHG prior to surgery

Patients who carry SA in their nares or on their skin are more likely to develop SA SSIs. This is true for methicillin-resistant as well as methicillin-sensitive SA.


Studies suggest that preoperative intranasal mupirocin reduces the risk of SSI for SA carriers.


A recent randomized, double-blinded, placebo-controlled trial showed that SA carriers treated with 5 days of intranasal mupirocin and CHG washes before surgery had a 60% lower SA SSI rate.