Despite the fact that hospital infection prevention and control programs have improved outcomes significantly for surgical patients, the recent history of progress appears bleak. From 1986 to 1996, the National Nosocomial Infections Surveillance database, created by the CDC, compiled data on about 600,000 surgeries performed in select U.S. hospitals. Of those, about 38% resulted in a surgical site infection (SSI). In fact, SSIs were the most common nosocomial, or hospital-acquired infection (HAI), with 77% of deaths in surgical patients attributed to infection.

By 1999, improvements in OR ventilation, sterilization, barriers, surgical technique, and antimicrobial prophylaxis resulted in a further decrease in SSIs. Postoperative SSI was then the third most frequent HAI with about 15% of surgical patients acquiring an infection. Then, in 2002, CDC estimates placed the burden of SSI at about 20%. Naturally, increased costs of care accompany any hospital complications. In 2003, a study at Brigham and Women’s Hospital revealed an increase in overall hospital charges from $2,079 to $7,925 for patients with SSIs compared with those who didn’t develop a SSI. In addition, radiology charges were about double, ED charges triple, and antibiotic charges were five times that of noninfected patients.

Hospitals are no longer paid by the Centers for Medicare and Medicaid Services (CMS) for the additional days required to treat Medicare patients with HAIs. This latest move by CMS underscores the fact that hospitals can do a better job of preventing infections for surgical patients, and all perioperative nurses should be doing everything possible to achieve this goal. A good place to begin is by implementing evidence-based practices that address common risk factors. In the past, OR staff have adequately addressed risks associated with surgical asepsis, sterilization, ventilation, barriers, and surgical technique. Now, we must focus on the host factors.

Following the lead from the CMS’ Surgical Care Improvement Project (SCIP), the Institute for Healthcare Improvement’s (IHI) 5 Million Lives Campaign has challenged U.S. hospitals to reliably implement several measures proven to reduce postsurgical complications. A few of those measures will be discussed here.

**Antimicrobial prophylaxis**

A landmark study by Classen et al. showed that administering one dose of antibiotics within 1 hour of the surgical incision significantly reduces the incidence of SSIs. Prolonged cases (those lasting longer than 4 hours) should include a re-dose of the antibiotics every 4 hours. These important research findings have been included in the CDC’s “Guideline for the Prevention of Surgical Site Infections” since 1999. They’re also included in SCIP and IHI measures for improving surgical care.

Implementing an effective, preoperative prophylactic antibiotic program involves multidisciplinary efforts. It’s imperative that ownership of administration and documentation of the antibiotic dose are clearly defined in each institution. Incorporating the antibiotic administration into the “time out” before incision is one way to ensure that the dose is on board prior to surgery start. Additionally, it may be helpful to provide a list of antibiotic choices according to oper-
Many studies have indicated a relationship between nasal carriage of *Staphylococcus aureus* and subsequent postoperative wound infections. Chronically elevated blood glucose levels have also been associated with an increased risk of SSI. Maintaining control of blood glucose levels has been shown to reduce the risk of SSI in cardiothoracic surgery patients. Current SCIP recommendations for glucose control in patients with diabetes undergoing major operative procedures include maintaining a serum blood glucose of 200 mg/dL or less beginning 24 hours before surgery and lasting until 48 hours after surgery.

In 2004, a large prospective study of surgical patients indicated that male gender, obesity, and a history of stroke were risk factors for nasal carriage of *S. aureus*. Chlorhexidine gluconate-containing products provide a residual effect when used repeatedly. The CDC recommends an antiseptic shower at least the night before surgery. Repeating the shower the morning of the surgery may add even greater benefit to reducing microbial load on the skin.

In recent years as well. The efficacy of alcohol and chlorhexidine gluconate-based products has been shown to significantly reduce the burden of microbial counts on skin and for longer periods of time than the traditional povidone iodine solutions. Regardless of the prep solution used, it’s imperative to apply the prep correctly using aseptic technique.3

### References
