

Infection

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Infection is one of the most dreaded complications of fracture surgery. Tremendous efforts are taken to lower the risk of infection, and yet it still occurs. More than 500,000 surgical site infections (SSIs) occur in the United States every year, a rate of approximately 2.8 per 100 operations. Each orthopedic SSI results, on average, in 1 additional day of hospitalization during the initial stay, 14 additional days of hospitalization over the course of treatment, and a nearly four-fold increase in direct costs of hospitalization. An infection increases the overall cost of care by approximately 300% on average. Orthopedic patients who develop SSI have an average of twice as many hospitalizations and operations as those who do not.¹ Overall, SSIs are believed to account for up to \$10 billion annually in health care expenditures.² Bacteriologic studies have suggested that the majority (approximately 80%) of SSIs originate from the patient's endogenous flora, while only about 20% come from contamination during surgery.³

While it is likely impossible to prevent infections entirely, some measures are believed to reduce the risk of developing infection after fracture surgery (Table 2-1). These include identification of patients at high risk, careful planning of surgical timing, the use of antibiotic prophylaxis, gentle tissue handling, minimization of surgical trauma, and manipulation of certain factors in the operating room (OR) environment. For open fractures, the adequacy of the initial irrigation and débridement procedure is thought to play an important role.

A variety of factors increase the risk of infection after fracture surgery. There are factors associated with the injury, the patient, the pathogen, and the surgery. Patient-related factors that increase infection risk include age extremes (young or old), diabetes⁴ (including, according to recent evidence, stress-induced hyperglycemia in nondiabetic patients⁵), peripheral vascular disease, malnutrition, immunodeficiency