

Prevention of Surgical Site Infection

GOAL: PREVENT SURGICAL SITE INFECTION (SSI) AND DEATHS FROM SSI BY RELIABLY IMPLEMENTING A SET OF INTERVENTIONS KNOWN AS THE “SSI BUNDLE” IN ALL SURGICAL PATIENTS.

BACKGROUND

- SSIs account for 14% to 16% of hospital-acquired infections.
- Among surgical patients, SSIs account for 40% of hospital-acquired infections.
- SSIs occur in 2% to 5% of patients after clean extra-abdominal operations and in up to 20% of patients undergoing intra-abdominal procedures.
- Surgical patients who develop SSIs are twice as likely to die as other surgical patients.
- Kirkland KB, et al. The impact of surgical-site infections in the 1990s: attributable mortality, excess length of hospitalization, and extra costs. *Infect Control Hosp Epidemiol.* 1999;20:725-730.
- The Centers for Disease Control and Prevention (CDC) issued guidelines for prevention of SSI in 1999.
- Mangram AJ, Horan TC, Pearson ML, et al. Guidelines for prevention of surgical site infection, 1999. *Infect Control Hosp Epidemiol.* 1999;20:247-278.
- The Institute of Medicine has identified the prevention of nosocomial infections, including SSI, as a priority area for national action.
- Adams K, Corrigan JM, eds. *Priority areas for national action: transforming health care quality.* Washington, DC: The National Academies Press, 2003.
- The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has included reducing the risk of health-care-associated infections, including SSI, in its 2005 National Patient Safety Goals.
www.jcaho.org
- The prevention of SSI is a component of the Surgical Care Improvement Project (SCIP).
www.medqic.org/scip

INTERVENTION – SSI BUNDLE

The power of a “bundle” is that it brings together those scientifically grounded concepts that are both necessary and sufficient to improve the clinical outcome of interest. The focus of measurement is the completion of the entire bundle as a single intervention, rather than completion of its individual components.

- The “SSI bundle” includes three components: guideline-based use of prophylactic antibiotics, appropriate hair removal, and perioperative glucose control.
- Guideline-based use of prophylactic antibiotics
- Mangram AJ, Horan TC, Pearson ML, et al. Guidelines for prevention of surgical site infection, 1999. *Infect Control Hosp Epidemiol.* 1999;20:247-278.

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- Appropriate surgical site hair removal (avoidance of shaving)
 - Mangram AJ, Horan TC, Pearson ML, et al. Guidelines for prevention of surgical site infection, 1999. *Infect Control Hosp Epidemiol.* 1999;20:247-278.
- Perioperative glucose control
 - Furnary AP, Zerr KJ, Grunkemeier GL, Starr AI. Continuous intravenous insulin infusion reduces the incidence of deep sternal wound infection in diabetic patients after cardiac surgical procedures. *Ann Thorac Surg.* 1999;67:352-362.
 - Van den Berghe G, Wouters P, Weekers F, et al. Intensive insulin therapy in critically ill patients. *N Engl J Med.* 2001;345:1359-1367.

SUCCESS STORIES

- OSF St. Joseph's Medical Center, Bloomington, IL, has significantly reduced SSIs by implementing the SSI bundle and other measures to reduce infection.
www.ihi.org/IHI/Topics/PatientSafety/SurgicalSiteInfections/ImprovementStories
- Mercy Health Center, Oklahoma City, OK, reduced SSIs by 78% in one year using evidence-based strategies, including the SSI bundle.
www.ihi.org/IHI/Topics/PatientSafety/SurgicalSiteInfections/ImprovementStories

RESOURCES

- CMS Surgical Infection Prevention Collaborative
www.ihi.org/IHI/Topics/PatientSafety/SurgicalSiteInfections/Tools
- Surgical Care Improvement Project (SCIP)
www.medqic.org/scip

We welcome your comments, suggestions for revision, and enhancements to this document. Please send suggestions, with contact information when possible, to 100k@IHI.org.

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