

# Enhancing Surgical Safety

Reality

## Background

Surgical site infections (SSI) are infections related to a surgical procedure that develop within 30 days, or, if an implant is used, within 90 days (CDC, 2024).

**Risk factors:** older age, diabetes, obesity, smoking, steroid use, immunocompromised, malnutrition, longer surgical times, type of surgery, intraoperative hypothermia, use of implants, **contamination of the surgical site**, poor ventilation, and **increased operating room traffic**. (Shambhu et al., 2024)

## Importance of Issue

- SSIs account for 20% of all hospital-acquired infections among adult patients nationally (CDC, 2026).
- SSI rates are 66% higher in emergency surgery than in elective surgery at a rural hospital.
- SSIs increase a patient's mortality risk 2- to 11-fold and cost between \$3.3 and \$10 billion annually (Shambhu et al., 2024).
- SSIs lead to longer hospital stays, prolonged IV antibiotic therapy, and loss of workdays and income for patients (Shambhu et al., 2024).

## Framework

The Model for Evidence-Based Practice Change was used to create this quality improvement project. This model uses the following six steps:

1. Assess the need for change in practice.
2. Locate the best evidence
3. Critically analyze the evidence
4. Plan the practice change
5. Implement and evaluate change in practice
6. Integrate and maintain change in practice. (Melnik & Fineout-Overholt, 2023)

Theoretical

## Key Concepts & Outcomes

The overall outcome is to reduce the rate of SSIs in adult surgical patients and the associated morbidity, mortality, and healthcare costs.

**Objective:** Reduce SSI rates at a rural hospital by 20% within one year of implementing this quality improvement project.



## Interventions & Solutions

**Individual Intervention:** Preoperative decolonization of the nares with an alcohol-based antiseptic (ABA).

**Department-level Intervention:** Reducing operating room traffic through education and the installation of door counters.

**Policy-level Intervention:** Integration of an evidence-based SSI risk tool into the surgical timeout and debrief.



## Key Players

**Patient Population:** Adult surgical patients

**Hospital Interdisciplinary Team Members:** Perioperative nurse manager (lead), nursing managers, operating room nurses, surgical technologists, surgeons, anesthesiologists, infectious disease specialists, intensivists, informatics experts, engineers, and dietitians.

**Community Members:** Home health, Primary care, Skilled nursing facilities.

## Evaluation

**Process evaluations:**

- Electronic medical record (EMR) review for preoperative application of ABA.
- EMR review for documentation of SSI Risk score and report during surgical timeout and debrief.

**Impact evaluations:**

- Nasal swab cultures before and after ABA application.
- Survey of surgeons and OR nurses on the impact the SSI risk score had on clinical decision making.

## References

- Agency for Healthcare Research and Quality. (2024). *Surgical site infections*. <https://psnet.ahrq.gov/primer/surgical-site-infections>
- Cardiac operating room.jpg. (2024, October 14). *Wikimedia Commons*. Retrieved April 12, 2026, from [https://commons.wikimedia.org/w/index.php?title=File:Cardiac\\_operating\\_room.jpg&oldid=942373122](https://commons.wikimedia.org/w/index.php?title=File:Cardiac_operating_room.jpg&oldid=942373122).
- Centers for Disease Control and Prevention. (2024, April 11). *Surgical site infection basics*. <https://www.cdc.gov/surgical-site-infections/about/index.html>
- Centers For Disease Control. (2026). *Surgical site infection event*. <https://www.cdc.gov/nhsn/pdfs/pscmanual/9pscscscurrent.pdf>
- Melnik, B. M., & Fineout-Overholt, E. (2023). *Evidence-based practice in Nursing & Healthcare: A guide to best practice*. Wolters Kluwer.
- Shambhu, S., Gordon, A. S., Liu, Y., Pany, M., Padula, W. V., Pronovost, P. J., & Hsu, E. (2024). The burden of health care utilization, cost, and mortality associated with select surgical site infections. *The Joint Commission Journal on Quality and Patient Safety*, 50(12), 857-866. <https://doi.org/10.1016/j.jcjq.2024.08.005>
- Staphylococcus aureus.jpeg. (2024, September 21). *Wikimedia Commons*. Retrieved April 12, 2026, from [https://commons.wikimedia.org/w/index.php?title=File:Staphylococcus\\_aureus.jpeg&oldid=927244777](https://commons.wikimedia.org/w/index.php?title=File:Staphylococcus_aureus.jpeg&oldid=927244777)

Sarah Moxon RN, CNOR

Cal Poly  
Humboldt.