

Presentation Type:

Poster Presentation - Poster Presentation

Subject Category: SSI

Immediate Use Steam Sterilization and the Effect on Surgical Site Infections in an Acute Care Facility

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Background: Immediate use steam sterilization (IUSS) shortens the time from sterilization to the aseptic transfer onto the surgical sterile field. Published data incompletely defines the extent to which IUSS increases risk of surgical site infection (SSI), compared to standard sterile reprocessing methods. We aimed to measure the association between IUSS use for surgical instrument reprocessing and SSI risk in a facility where IUSS use increased due to staffing constraints and case volumes. **Methods:** In this retrospective observational study at a tertiary care hospital with a diverse mix of surgery types, we used sterile reprocessing logs and SSI outcomes defined using National Health and Safety Network definitions to compare SSI rates among surgeries using surgical devices sterilized using IUSS compared to standard terminal sterilization methods. We calculated a risk ratio (RR) and 95% confidence interval (95%CI), including stratification by eleven high-volume service lines. **Results:** Among 23,919 surgical procedures, 416 (1.74%) developed SSIs. IUSS was used to sterilize instruments prior to 1,524 (6.37%) surgical procedures, and of these procedures 39 (2.56%) developed an SSI, compared to 1.68% of non-IUSS procedures (377 SSI in 22,395 procedures; risk ratio [RR] 1.52, 95% confidence interval [95%CI] 1.10-2.11). Two surgical services had statistically significant RRs for SSI development after IUSS: transplant surgery (RR 2.47, 95%CI 1.32-4.60) and plastic surgery (RR 3.64, 95%CI 1.13-11.74; Figure). **Conclusion:** IUSS is associated with a significant increase in SSIs, including among varied surgery types. IUSS utilization should be minimized.

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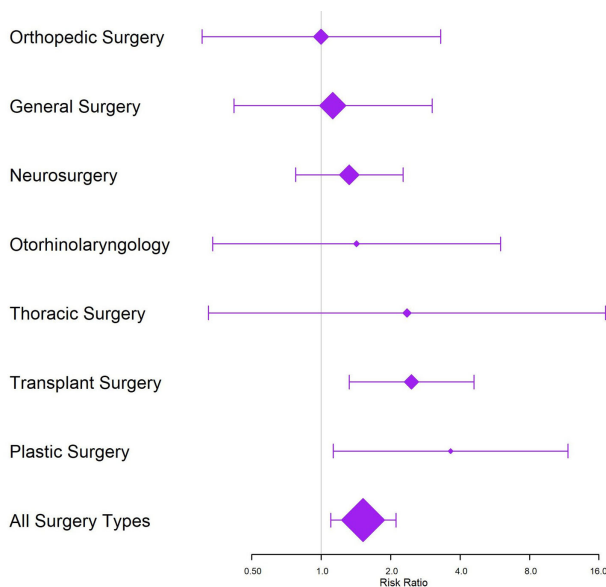


Figure: Odds of NHSN-defined surgical site infection among procedures with and without preceding immediate use steam sterilization of surgical devices, by surgery type.

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Microbiologic Evaluation of Colorectal Surgical Site Infections to Guide Surgical Prophylaxis Recommendations

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Background: Use of a combination of parenteral and oral antimicrobial prophylaxis prior to colorectal surgery is recommended to reduce risk of surgical site infection (SSI). Parenteral antibiotic selection is complicated by the need to target organisms likely to cause infection at the surgery site, while mitigating risk of antimicrobial resistance caused by overuse of broad spectrum agents. This study aimed to evaluate microbiologic data from colorectal surgical site infections across an 11-hospital health system. Microbiologic data from SSI events were used to assess continued appropriateness of health system standard recommendations for parenteral antibiotic prophylaxis in colorectal surgery, consisting of either cefazolin with metronidazole or ceftioxin monotherapy. **Methods:** This multicenter, retrospective, observational study was conducted from January 1, 2019 to March 31, 2023, using data extracted from the National Healthcare Safety Network (NHSN). Microbiologic data from colorectal SSIs from 2019 to 2022 were evaluated for a descriptive review of pathogen and phenotype trends. SSI data excluded patients age < 18 years, those identified as infection present at time of surgery (PATOS), or outpatient procedures. **Results:** A total of 8059 colorectal procedures were evaluated. Most SSIs were polymicrobial, with at least one pathogen detected in 65% of cases. The most commonly identified organisms were *E. coli* (22.5%), *Enterococcus* spp. (19.7%), *P. aeruginosa* (6.5%), *Streptococcus* spp. (4.9%), and *C. albicans* (4.7%). Change over time in antimicrobial-resistant phenotypes from 2019 to 2022 was not statistically significant for extended-spectrum cephalosporin-resistant *E. coli* (p=0.335), extended-spectrum cephalosporin-resistant *K. oxytoca/pneumoniae* (p=0.189), multi-drug resistant *P. aeruginosa* (0.058), methicillin-resistant *S. aureus* (p=0.906), or among isolates with no identified antimicrobial-resistance phenotype (p=0.096). Among *E. coli*, change from 2019 to 2022 in cefazolin non-susceptible, ceftriaxone susceptible isolates was not statistically significant (p=0.177). No carbapenem-resistant Enterobacterales isolates were identified among non-PATOS cases. **Conclusions:** Data does not support a change to broader spectrum agents for colorectal surgery parenteral antimicrobial prophylaxis. Continued use of cefazolin with metronidazole or ceftioxin as IV antibiotic prophylaxis in colorectal surgery is recommended, with ongoing tracking of microbiologic trends and antimicrobial susceptibility.

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Bundle Implementation to Prevent Surgical Site Infections - A Study of SRN Hospitals

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Background: Guidelines recommend bundles with multiple infection control elements to prevent surgical site infections (SSI). Although effective in multiple research studies, little is known about the implementation of such