Background: SSI results in increased mortality, morbidity, length of stay and healthcare costs. Use of nasal iodine for some surgeries has been proposed as an easy, economic alternative to 5-day preoperative chlorhexidine bath and intranasal mupirocin decolonization in SSI prevention but data on effectiveness is limited. We aim to assess the association between preoperative nasal iodine application and odds of SSI. **Methods:** We performed a retrospective study of all total hip replacement, total knee replacement, and spinal fusion surgeries performed between January 2023 through June 2024 in 10 facilities in a large healthcare system. Demographics, clinical risk factors, and procedural data were collated from the electronic health record and merged with SSI data obtained through routine surveillance by trained infection preventionists using standard NHSN (National Healthcare and Safety Network) definitions. Patients with SSI present at the time of surgery were excluded. Nasal iodine compliance was defined as documentation of nasal iodine administration in both nostrils on the day of surgery in the preoperative space. Surgeries where nasal iodine was documented as not given or that had absence of documentation were counted as noncompliant. Descriptive statistics were used to compare compliant and noncompliant patients. Multivariate logistic regression was performed to assess the association between nasal iodine compliance and SSI. **Results:** A total of 14,505 surgeries were included, of which 161 (1.1%) were complicated by SSI. 12,281 (84.6%) of patients were compliant with nasal iodine. Around 55% of the noncompliant surgeries had absent documentation. In the univariate analysis, compliance was associated with several clinical and procedural factors including older median age, female gender, White race, shorter procedure duration, elective procedure, outpatient procedure, and lower ASA score. Unadjusted SSI rate per 100 procedures was lower in those compliant with nasal iodine compared to noncompliant (1% and 1.6% respectively, p=0.01). (Table 1) After adjusting for age, gender, race, procedure type, and procedure duration, there was no significant difference in odds of SSI associated with nasal iodine compliance. (Odds ratio 0.78, p=0.23) (Table 2) **Conclusion:** Use of nasal iodine on day of surgery did not impact odds of SSI after adjusting for other clinical factors. This study is limited by inclusion of cases with absent documentation of nasal iodine and differences in clinical and procedural characteristics between compliant and noncompliant patients. Further studies are needed to assess effect of nasal iodine on SSI.

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Preoperative Nasal Povidone Iodine to Prevent Staphylococcus aureus Surgical Site Infections in Pediatric Patients

Ashley Lloyd[1], Emily Hunter[2], Adriana Condren[3], Derek Harford[4], Angela Niesen[5], Elizabeth Daniels[5] and Patrick Reich[6]

[1]St. Louis Children's Hospital; [2]Saint Louis Children's Hospital; [3]BJC; [4]St. Louis Children's Hospital; [5]Washington University in St. Louis and [6]Washington University School of Medicine

Background: From October 2023-June 2024 increased surgical site infection (SSI) rates were identified in our large pediatric hospital, 38% were caused by Staphylococcus aureus. Nasal S. aureus colonization is associated with increased SSI risk and preoperative nasal decolonization decreases S. aureus SSI risk. Historically, our institution recommended a five-day course of nasal mupirocin decolonization prior to selected high-risk procedure types, though this process it not possible for urgent cases and outpatient compliance is low. Nasal povidone iodine (PI) is a topical antiseptic used commonly in adults as an alternative to nasal mupirocin for S. aureus decolonization and SSI prevention. This practice is less commonly described in pediatric patients. **Methods:** In addition to standard SSI prevention measures, universal nasal PI application was implemented preoperatively (as a single topical application following induction of anesthesia) in July 2024 for patients ≥34 weeks corrected gestational age (CGA) undergoing the following high-risk surgical procedures: ventricular shunts, spinal fusions, and all cardiothoracic (CT) procedures. Compliance with nasal PI application was monitored based on documentation in the electronic medical record. Mean monthly total SSI rates (per 100 procedures) and mean monthly S. aureus SSI rates for these procedure types were followed pre- and post-implementation of universal nasal PI and compared via unpaired t-test. **Results:** Documented compliance with nasal PI application was 51% overall, ranging from 22% for ventricular shunts to 75% for CT procedures. Implementation of universal nasal PI preoperatively was associated with a non-statistically significant decrease in composite mean SSI rates (Figure 1A): 3.5 per 100 procedures pre-implementation, 2.3 post-implementation (p=0.52). A statistically significant decrease in composite mean S. aureus SSI rates was observed (Figure 1B): 1.3 per 100 procedures pre-implementation, 0.0 post-implementation (p=0.02). **Conclusion:** Despite modest documented compliance, implementation of a universal preoperative nasal PI program, in conjunction with standard SSI prevention measures, was associated with decreased S. aureus SSI rates in pediatric patients undergoing high-risk surgical procedures.

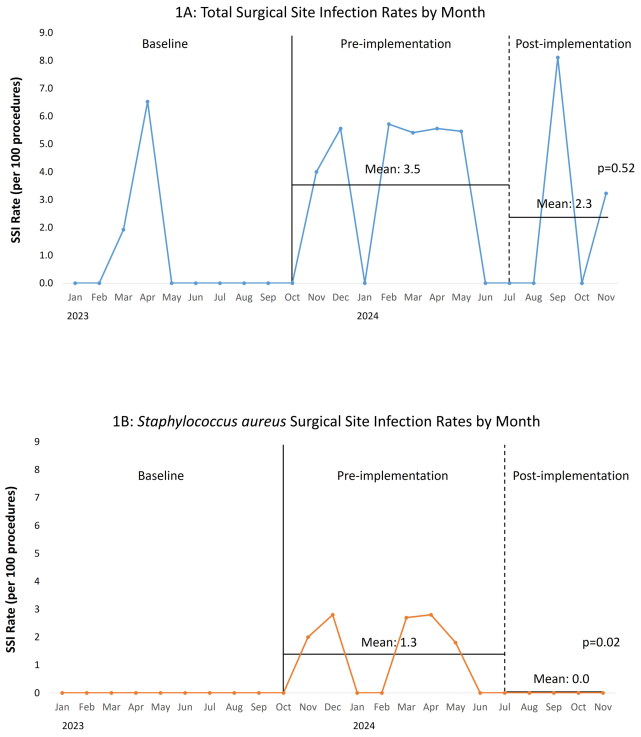

Figure 1. Total (1A) and Staphylococcus aureus (1B) surgical site infection (SSI) rate per 100 ventricular shunt, spinal fusion, and cardiothoracic procedures (combined) by month from January 2023 through November 2024. The solid vertical line indicates the beginning of the period with increased S. aureus SSI rates (pre-implementation period). The dashed vertical line indicates the start of the implementation period. Mean SSI rates for the pre- and post-implementation periods are indicated by the horizontal lines and compared via t-test.

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