area. Postoperatively any patient found to have (methicillin-resistant S. aureus) MRSA from preoperative screen or who had a history of MRSA in the past year were automatically decolonized with 5 days of intranasal mupirocin and CHG baths in addition. Compliance with S. aureus screening in preoperative area, results of screens and rates of THR, TKR and fusion SSI per National Health Safety Network (NHSN) definitions were monitored throughout the study period. SSI standardized infection ratios (SIR) during the study were compared with data 1 year prior to intervention date.

Results. Between August 2018 and January 2019, 694 THR, TKR and fusion surgeries were performed. Preoperative nursing compliance with completing the SA screen was 79.2% and percent compliance with administering/documenting nasal iodine was 77.8%. Of those screened 21.7% (126/578) were found to have SA. Only 15% (n = 19) of SA positive PCRs were positive for MRSA. SSS decreased in intervention period compared with preintervention (August 2017–July 2018) as shown in Table 1.

Conclusion. Preoperative nasal iodine has been effective and helped reduce our infection SIR to below 1. These results could be confounded by the presence of other initiatives but looks promising and large-scale studies would be helpful to make these results generalizable.

Table 1 - Rates of hips/knees and fusion infection pre and post intervention

|          | THR Pre | THR Post | Fusion Pre | Fusion Post |
|----------|---------|----------|------------|-------------|
| SSI Rate per 100 surgeries | 1.36 | 0.82 | 1.53 | 1.17 |
| Pre | Post | Pre | Post | Pre | Post |
| SSI Risk Ratio | 0.60 (0.17-2.18, p>0.44) | 0.76 (0.15-3.90, p>0.73) | 0.12 (0.01-2.01, p>0.24) | 0.50 (0.19-3.11, p>0.36) |
| Standardized Infection Ratio | 1.68 | 1.40 | 1.50 | 1.24 |

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124. Evaluation of Risk Factors for Development of Total Hip Arthroplasty (THA) Surgical Site Infections (SSI)

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Background. THA is one of the most commonly performed surgeries for pathologic diseases of the hip. Multiple risk factors have been identified for SSI including: female gender, previous joint surgery, hematoma, joint dislocation, intraarticular glucocorticoid injection, rheumatoid arthritis, uncontrolled diabetes, anemia, malnutrition, and an immunosuppressed state. The objective of our study is to evaluate obesity (body mass index (BMI) >30) as an independent risk factor for THA SSI and identify other risk factors for SSI

Methods. A retrospective case–control (1:3) matched observation study was conducted from January 1, 2014–June 30, 2016. Patients with a THA were identified using NHSN definitions and 3 controls were matched for sex and month of surgery for each SSI case. Patient information was extracted through chart review including BMI, revision surgery, chronic kidney disease (CKD), diabetes mellitus (DM), anemia, malnutrition, smoking, surgery duration, steroid use, pre-operative chlorhexidine (CHG) bathing and nasal peroxide–iodine (PI) compliance. Multivariate analysis using a conditional logistic regression model was performed.

Results. Among 906 THA, 29 patients developed an SSI with 87 matched patients over the 2.5 years. The mean age in the SSI group was 61.0 years, and 37.9% were male. Mean age in the control group was 63.1, and 40.1% were male. In both groups, the most common indications for surgery were osteoarthritis followed by osteonecrosis and malignancy. Results of multivariate analysis identified five independent risk factors for SSI (see Table 1).

Conclusion. Obesity (BMI >30) was identified as an independent risk factor for THA SSI as well as CKD, steroid use and revision arthroplasty. While these risk factors are not easily modifiable, noncompliance with pre-operative CHG bathing and PI administration were also identified as significant SSI risk factors. These findings emphasize the importance of evaluating patients for SSI risk factors including obesity and improving compliance with all pre-operative SSI reduction measures.

Table 1

| Odds Ratio | Confidence Interval | p-value |
|-----------|---------------------|---------|
| BMI       | 1.30                | 1.00 - 1.61 | 0.04 |
| CKD       | 1.43                | 0.92 - 2.20 | 0.009 |
| Steroid use | 19.8            | 2.32 - 168.7 | 0.006 |
| No CHG or PI | 0.22         | 0.07 - 0.72 | 0.01 |
| Revision | 8.75                | 1.00 - 76.8 | 0.05 |

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1243. Continuous vs. Intermittent Intraoperative Infusion of Cefazolin on Surgical Site Infections (SSIs) and Acute Kidney Injury in Patients Undergoing Cardiac Procedures

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1244. Evaluation of Intraoperative Topical Vancomycin and the Incidence of Acute Kidney Injury

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Background. The use of intraoperative topical vancomycin (VAN) is a strategy aimed to prevent surgical site infections (SSI). Although there is evidence to support its efficacy in SSI prevention following orthopedic spine surgeries, data describing its safety, specifically acute kidney injury (AKI) risk, is limited. The purpose of this study was to determine the incidence of AKI associated with intraoperative topical V an.

Methods. This is a retrospective cohort study reviewing patient encounters where intraoperative topical VAN was administered from February 2018 to July 2018. All adult patients (>21 years) that received topical VAN in the form of powder, beads, rods, paste, cream, or any other unspecified topical routes were included. Patient encounters were excluded for AKI or renal replacement therapy (RRT) at baseline, ≤2 serum creatinine values drawn after surgery, and/or if irrigation was the only topical formulation given. The primary outcome was the percentage of patients who developed AKI after intraoperative topical VAN administration. AKI was defined as an increase in serum creatinine (SCr) ≥0.5 mg/dL, an increase in SCr ≥0.5 mg/dL from baseline, or oR if RRT was initiated after topical VAN was given. Secondary outcomes included analysis of AKI risk factors and SSI incidence. AKI risk factors were analyzed using a multivariable logistic regression model.

Results. A total of 589 patient encounters met study criteria. VAN powder was administered in 64.5% of cases and intermittent infusion (INF) in 35.5%. Male, n (%) 388 (64.5), Age, median (IQR) 65.4 (56, 71.1); 64.8 (53.5, 71.4) Charlson Score, median (IQR) 5 (3.0), 7 (6.12) Diabetes, n (%) 149 (25.1), 199 (35.1) Wound Classification, n (%) 3 (0.4) 3 (0.4) Baseline creatinine (mg/dL, n (%)) 1.0 (0.7), 1.0 (0.7) Intraoperative vancomycin use, n (%) 995 (71.2) 488 (54.7)

Conclusion. AKI rates associated with intraoperative topical VAN are comparable to that of systemic VAN. Total topical vancomycin dose and concomitant systemic VAN was associated with an increased AKI risk. Additional analysis is warranted to compare these patients to a similar population that did not receive topical VAN.

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1245. Does Complexity of Infection Prevention Bundles Matter in Colorectal Surgery? A Systematic Review and Meta-Analysis

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Background. Surgical site infection (SSI) prevention bundles in colorectal surgery are common. The optimal bundle composition and impact of increasingly complex and resource-intensive bundled interventions on SSI remain unclear.

Methods. A systematic review and meta-analysis of randomized and observational trials with pre-post implementation data for colorectal SSI prevention bundles to study their effect on superficial, deep, and organ-space SSI. A meta-regression to determine whether the bundle size (number of different bundle elements) affects SSI. A correlation analysis to identify individual bundle elements with greatest SSI reduction. We used the METAN, METAEXP, and METAAREG packages in STATA SE 15 for analysis.

Results. We included 38 studies in the systematic review, and 29 studies (49,589 patients) in the meta-analysis. Bundle composition was highly variable, ranging from 3–13 guideline-recommended elements per bundle. Meta-analyses showed bundles to be associated with relative risk reductions of 43% for any SSI (RR 0.57 [95% CI 0.48–0.67]; 44% for superficial SSI (RR 0.56 [95% CI 0.42–0.75]; 33% for deep SSI (RR 0.67 [95% CI 0.45–0.98), and 37% for organ/space SSI (RR 0.63 [95% CI 0.49–0.81)). On meta-regression, bundle size, especially 2–10 elements, was significantly associated with SSI reduction for any SSI (P = 0.04) and for superficial SSI (P = 0.005). Individual bundle elements correlated with strongest SSI reductions were mechanical bowel prep combined with oral antibiotics (R = −0.68, P = 0.0028) and pre-operative colonoscopy in colon cancer patients (R = −0.49, P = 0.04) for organ/space SSI. Protocols including separate instrument trays and gloved gown change prior to surgical wound closure (R = −0.55, P = 0.009), and standardized postoperative wound dressing change at 48 hours (R = −0.30, P = 0.005) correlated with highest superficial SSI reductions.

Conclusion. Complex colorectal bundles with ≥10 clinical guideline-recommended prevention elements are associated with higher reductions in any SSI and in superficial SSI. Further research should evaluate how complex SSI prevention colorectal bundles can be implemented and sustained with high fidelity in the clinical setting in a cost-effective manner.

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1246. Outcomes of Extended Spectrum β-Lactamases Producing Enterobacteriaceae Colonization among Patients Underwent Abdominal Surgery

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Background. Enterobacteriaceae colonization among surgical patients undergoing abdominal surgery are common. The optimal bundle composition and impact of increasingly complex and resource-intensive bundled interventions on SSI remain unclear.

Methods. A prospective cohort study was performed from January 1, 2016 to March 31, 2019. All patients who underwent abdominal surgical procedures were enrolled. Enrolled surgical patients were screened for ESBL EN colonization by rectal swab culture 1 day before and 5 days after surgery. Data collection included clinical characteristics, risk of SSIs, previous hospitalization, and type of surgical procedure, antibiotic prophylaxis and duration, ASA risk class, and 28-day postoperative outcomes, inclusive of SSIs and associated microbiological data.

Results. Among 360 prospectively enrolled patients, 204 (56%) were male; the abdominal surgical types included 234 (65%) clean-contaminated, 90 (25%) contaminated, and 36 (10%) dirty cases. Pre-op,129 patients (36%) had ESBL EN colonization. Surgical prophylaxis included second-generation cephalosporins (50%), carbapenems (26%), or third-generation cephalosporins (24%). Enteric colonization with ESBL EN was an independent predictor of intra-abdominal SSIs (aOR = 3.6; 95% CI = 1.94–6.99) and for organ/space SSI (aOR = 3.6; 95% CI = 1.94–6.99) and for superficial SSI (aOR = 3.6; 95% CI = 1.94–6.99) and for deep SSI (aOR = 3.6; 95% CI = 1.94–6.99). In contrast, all 10 cases of intra-abdominal SSIs were Enterobacter spp. (5/41; 12%) and Pseudomonas aeruginosa (4/41; 15%) and non-ESBL EN (16/41; 39%). In contrast, all 10 cases of intra-abdominal SSIs were Enterobacter spp. (5/41; 12%) and Pseudomonas aeruginosa (4/41; 15%) and non-ESBL EN (16/41; 39%).

Conclusion. Enteric colonization with ESBL EN was an independent predictor of intra-abdominal SSIs during ESBL EN, while superficial SSIs were associated with a variety of non-ESBL pathogens. Our study support the need for awareness of the SSI risks associated with ESBL EN. Additionally, the findings support current surgical prophylaxis guideline for the use of non-carbapenem among ESBL EN colonizer undergoing abdominal surgery.

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