Disclosures. **M. Juthani-Mehta**, Iterum Therapeutics: Scientific Advisor, Consulting fee.

2120. The Culture of Culturing Catheterized Patients: A Multi-Hospital Survey of Nurses and Physicians

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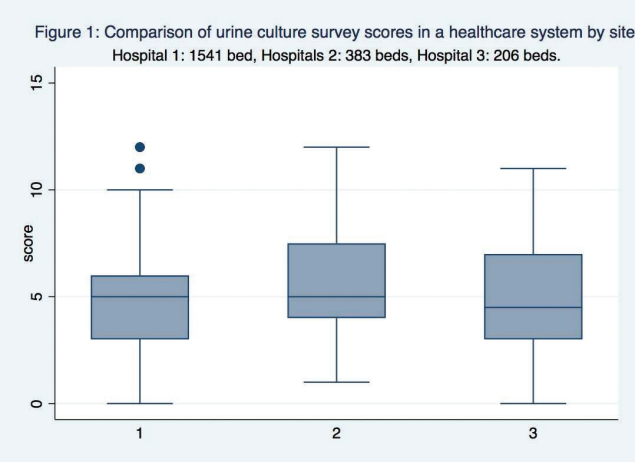
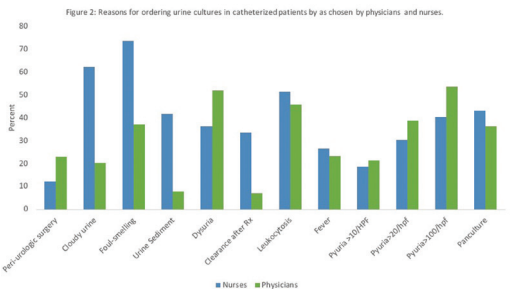
Background. Many cases of catheter-associated urinary tract infection are actually asymptomatic bacteriuria (ASB) that does not require antibiotic treatment. A positive urine culture often drives initiation of antibiotics in ASB. There is a growing need to focus on the culture of culturing. The aim of this project was to evaluate our current practice of obtaining urine cultures in catheterized patients and find opportunities for education.

Methods. This study was conducted at three hospitals with 1541, 383, and 206 beds in the Yale New Haven Health System in CT between January 10, 2018 and March 12, 2018. Electronic and paper surveys were distributed to medical and nursing staff. The survey included questions related to indications for ordering urine cultures in catheterized patients. Appropriateness of culturing was assessed based on Infectious Diseases Society of America guideline recommendations. A 12-point score was calculated with 1 point for each incorrect answer. The differences between the mean scores were analyzed by analysis of variance and t-tests. Data were analyzed using STATA Version 15.

Results. We received 618 complete responses from 330 (54%) nurses and 256 (41.4%) physicians. Mean scores for Hospitals 1, 2 and 3 were not significantly different (4.79, 5.61, 4.87; Figure 1). Physicians scored better than nurses (4.2 vs. 5.4, $P < 0.01$), senior trainees (PGY2 and above) scored better than interns, who scored better than medical students (3.9 vs. 4.8 vs. 6.3, $P < 0.01$). Those working in noncritical care units scored worse than average (5.4 vs. 4.9, $P < 0.01$). Peri-urologic surgery, despite being an acceptable indication, was one of the least-selected answers (18%). Nurses were more likely to order urine culture for appearance (61% vs. 20% $P < 0.01$) and odor (73% vs. 37% $P < 0.01$), when compared with physicians (Figure 2).

Conclusion. Our data show that current urine culture ordering practice in a large teaching healthcare system is not evidence based. This survey reveals knowledge gaps and the need to address practice competencies, suggesting the need for periodic audits and education in diagnostic stewardship. Future studies should focus on impact and sustainability of educational interventions in these groups.





Disclosures. **M. Juthani-Mehta**, Iterum Therapeutics: Scientific Advisor, Consulting fee.

2121. Shifting Surgical Site Infection Denominators and Implication on NHSN Reporting

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Background. Per National Healthcare Safety Network (NHSN) rules, when multiple procedures are performed during a single operation, the operation is counted in the surgical site infection (SSI) denominator of each NHSN surgical procedure category. SSIs, however, are counted only in the highest-ranking procedure category. These rules result in procedures that are ineligible to have an associated SSI being counted in SSI denominators.

Methods. We analyzed 3 years (January 1, 2015–December 31, 2017) of laminectomy and rectal surgery SSI data from hospitals in the Duke Infection Control Outreach Network (DICON) that used ICD procedure codes to assign denominators per NHSN definitions. We compared SSI rates using two different denominators: NHSN denominators vs. reduced denominators that counted only primary laminectomy and rectal surgery procedures. We calculated rate ratios (RR) to compare the NHSN and adjusted SSI rates for each procedure for all hospitals that reported at least 1 SSI.

Results. Eleven hospitals reported 87 infections following 17,247 laminectomy procedures. The overall SSI rate increased by 44% when only primary procedures were counted in the denominator (RR 1.44); but individual hospital RR ranged from 1.10 to 2.20 (Table 1). 5 hospitals reported seven SSIs following 740 rectal procedures. The overall SSI rate increased by 143% when only primary procedures were counted in the denominator (RR 2.43), but individual hospital RR ranged from 2.00 to 5.00 (Table 1).

Conclusion. NHSN's method for calculating SSI denominators underestimates true SSI rate. The current method particularly impacts procedures that are frequently performed in conjunction with higher-ranking NHSN procedures. Counting only primary procedures in procedure category denominators would provide higher, more accurate SSI rates.

Table 1. Comparison of SSI Rates Calculated Using Adjusted Denominators vs. NHSN Denominators

Laminectomy Procedures			
Hospital	Adjusted Rate	NHSN Rate	RR
1	0.55	0.50	1.10
2	0.61	0.53	1.15
3	0.63	0.55	1.16
4	0.26	0.22	1.22
5	1.18	0.90	1.30
6	1.43	1.06	1.34
7	0.24	0.18	1.34
8	0.99	0.70	1.41
9	0.82	0.46	1.77
10	0.84	0.41	2.05
11	1.09	0.50	2.20
Overall	0.72	0.50	1.44
Rectal Surgeries			
Hospital	Adjusted Rate	NHSN Rate	RR
1	9.52	4.77	2.00
2	0.60	0.27	2.27
3	2.53	1.07	2.37
4	2.70	0.81	3.35
5	5.00	1.00	5.00
Overall	2.30	0.95	2.43

Disclosures. **All authors:** No reported disclosures.

2122. Can Chlorhexidine Reduce Bacterial Colonization in Surgical Drains and Surgical Site Infections After Breast Cancer Surgery? A Randomized Controlled Trial

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Background. Breast surgery is considered a clean surgery; however, surgical site infection (SSI) rates are higher than predicted. Postoperative drains remain *in situ* for several days with an inevitable bacterial colonization and increased risk of SSI.

Methods. We conducted a randomized controlled trial from October 2016 to January 2018 in a Mexican cancer center with high SSI prevalence. We included women with elective breast cancer surgery. Patients were randomized to control (standard drain care) or intervention (occlusive dressing with chlorhexidine 2% at the drain exit site). Perioperative management was standardized for both groups. Patient follow-ups were performed on a weekly basis for at least 30 days. Fluid cultures were performed at the first and second week as standardized in the laboratory. At the time of drain removal, the inner portion was sectioned and cultured by Maki's semi-quantitative technique. Bacterial quantification was performed using 16 s rRNA-qPCR assay. Culture results of drain fluid and tubing were compared between groups.

Results. We included 104 patients with 167 surgical drains. Patients' clinical characteristics (i.e., age, body mass index, comorbidities, clinical stage, preoperative risk, neoadjuvant therapy) were similar in both groups, with no statistical differences. Bulb fluid cultures at the first postoperative week were positive in 42.9% of the control group compared with 27.6% of the antiseptic group (P = 0.04). Cultures from the second week assessment were positive in 79.4% of the control group vs. 53.5% of the antiseptic arm (P = 0.001). Cultures from drain-tubes were positive in 70.2 and 43.8% (P = 0.001) of the control and antiseptic group, respectively (Figure 1). Eleven patients developed an SSI, three (15.4%) from the intervention group, and eight (15.8%) from the control group (P = 0.11). Eighty-four pathogens were isolated from the control group samples at week 1 vs. 52 from the intervention group. *Staphylococci* spp. were the most common microorganisms in Week 1, 61.9% control and 35% intervention group.

Conclusion. Local antiseptics provide an opportunity to test simple, safe, and low-cost interventions that may reduce drain bacterial colonization after breast surgery and potentially decrease infectious complications. Our microbiology findings question breast tissue sterility.

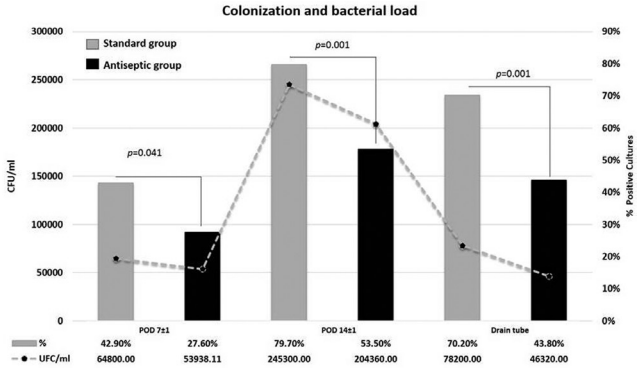

Figure 1. Colonization rates (%) and bacterial load (CFU/ml) in the bulb fluid at the 7th and 14th postoperative day (POD); and in the drain tube at removal.

Disclosures. **F. Rivera-Buendía**, 3M: Donated the dressings used, Research support. **D. Vilar-Compte**, 3M: Donated the dressings used, Research support.

2123. High Utilization of Post-Discharge Antibiotics After Mastectomy in a Nationwide Cohort of Commercially Insured Women

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Background. Prophylactic antibiotics are commonly prescribed at discharge for mastectomy, despite many guidelines recommending discontinuation 24 hours after surgery. The objective of this study was to determine the prevalence and patterns of post-discharge prophylactic antibiotic use after mastectomy in a geographically representative, commercially insured population.

Methods. We identified a cohort of women aged 18–64 years undergoing mastectomy between January 2010 and June 2015 using the Truven Health MarketScan Databases. Patients with evidence of an infection during the surgical admission or 30 days prior were excluded. Post-discharge antibiotic use was identified from outpatient drug claims within 5 days post-discharge. Univariate logistic regression was used to compare antibiotic use by reconstruction type and geographic factors.

Results. The analysis included 43,391 mastectomy procedures. The median age was 52 years; 37,687 (86.8%) patients resided in an urban/suburban area; 27,264 (62.8%) of mastectomy procedures involved immediate reconstruction (IR) and 39,825 (91.8%) patients had a diagnosis of breast cancer or carcinoma *in situ*. Post-discharge prophylactic antibiotics were used in 16,493 (38.0%) surgeries. The most commonly prescribed antibiotics were cephalexin (59.0%), cefadroxil (9.6%), clindamycin (8.3%), and trimethoprim/sulfamethoxazole (TMP/SMX) (7.5%). Antibiotic use did not change significantly from 2010 to 2015 for mastectomy only (P = 0.064) or mastectomy + IR (P = 0.1912; Cochran–Armitage test). Mastectomy patients with IR were more likely to be prescribed antibiotics (50.7% of IR vs. 19.8% of mastectomy only; P < 0.001). In mastectomy only and mastectomy + IR, antibiotic use varied by U.S. region (Figure 1). Among mastectomy + IR, the type of post-discharge antibiotic prescribed differed by U.S. region (Figure 2). In mastectomy + IR, TMP/SMX use increased from 2010 to 2015 (3.3% of procedures in 2010 vs. 5.7% in 2015; P < 0.001; Cochran–Armitage test).

Conclusion. Post-discharge prophylactic antibiotic use is common after mastectomy and varies by reconstruction status and U.S. region. Regional variation in prescribing practices is potential targets for antimicrobial stewardship interventions.

Figure 1.

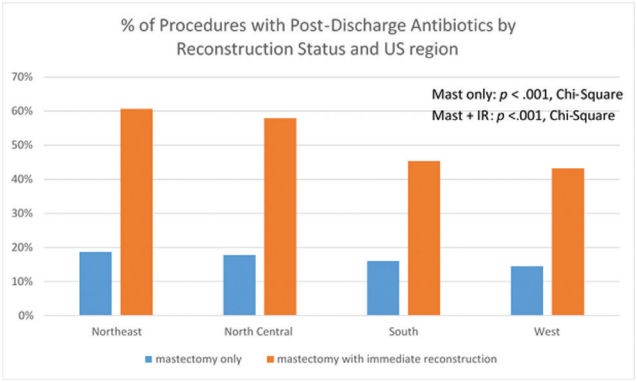
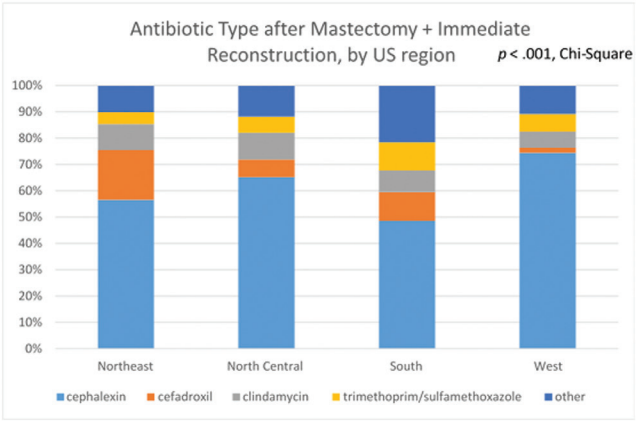


Figure 2.



Disclosures. **All authors:** No reported disclosures.

2124. A Bundled Intervention Was Associated with Decreased Risk of Complex *Staphylococcus aureus* Surgical Site Infections among Patients Undergoing Clean Operative Procedures

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Background. Our previous multicenter study suggested that a bundled intervention was associated with lower rates of complex *S. aureus* surgical site infections (SA SSIs) among patients undergoing cardiac or orthopedic operations in community hospitals. We aimed to evaluate the effect of this bundle in patients undergoing neurosurgical (NSG) operation, cardiac operation, or hip/knee arthroplasty at an academic health center.

Methods. This pragmatic quasi-experimental study included adult patients who underwent one of the procedures between June 1, 2012 and September 30, 2015 except those whose operations were done to treat infection. The bundle involved screening patients for SA nasal carriage, decolonizing carriers with intranasal mupirocin and chlorhexidine-gluconate bathing, and perioperative prophylaxis with vancomycin and cefazolin for patients who carried MRSA. The primary outcome was complex SA SSIs. To analyze changes in SSI rates, we used Poisson regression in time-series analysis. We used breast operations as a non-equivalent control group.