

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.

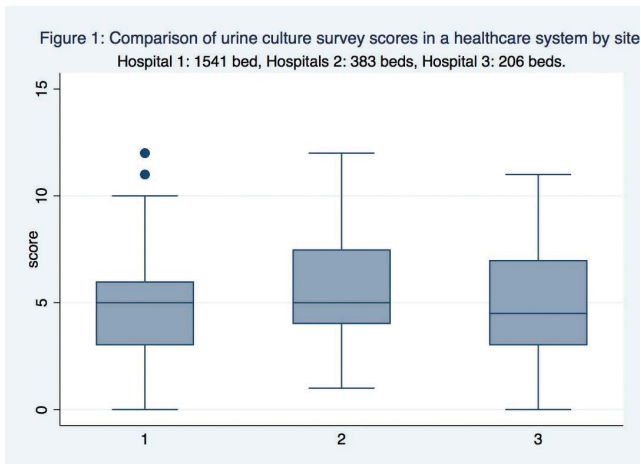


Figure 1: Comparison of urine culture survey scores in a healthcare system by site
Hospital 1: 1541 bed, Hospitals 2: 383 beds, Hospital 3: 206 beds.

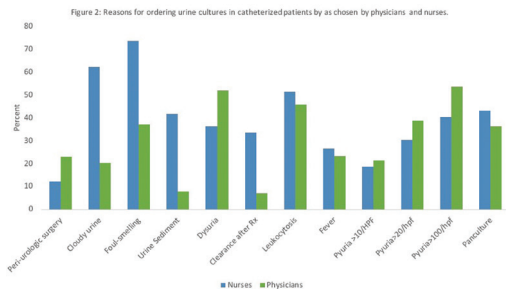


Figure 2: Reasons for ordering urine cultures in catheterized patients by as chosen by physicians and nurses.

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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

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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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