

bacterial contamination that can be easily incorporated into clinical workflow. Larger studies are needed to determine the efficacy of ABHR at removing CIP from stethoscopes as stethoscopes in both arms were frequently contaminated with CIP. Prior cleaning of stethoscopes on the study day did not seem to impact contamination rates, suggesting the impact of alcohol foam disinfection is short-lived and may need to be repeated frequently (ie, after each use).

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Poster Presentation

Amidst the CAUTI Metrics Hurley Burly, a Sustained SURly Success Adaptable for Reducing Other Nosocomial Infections

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Background: Surveillance metrics for catheter-associated urinary tract infections (CAUTIs) are subject to ongoing debate and refinement to best capture infectious catheter-related harm (ICRH) and noninfectious catheter-related harm (NCRH). Indwelling urinary catheters cause 5 times more NCRH than ICRH. The commonly

used standardized infection ratio (SIR) does not fully capture NCRH nor the impact of prevention efforts in all settings. Alternatively, device utilization rates and ratios (DUR) do not reflect differences in other factors that may describe levels of device use. DUR lose comparability over time and across settings and can mask truly effective interventions by selecting for a higher risk group of catheterized patients. Experts now advocate use of the standardized utilization ratio (SUR). We sought to implement a multidimensional intervention to reduce exposure risk, CAUTI, and NCRH across a 5-hospital healthcare system, totaling 1,692 acute-care beds. **Methods:** The intervention comprised the following elements: (1) an interactive educational campaign comprising one-on-one engagements between infection preventionists and frontline providers, encouraging the use of female external urinary collection devices and male custom-fitted condom catheters, rewarding overall participation, device utilization, hand hygiene, and CAUTI rates; (2) educational emails to all staff from top executives; (3) increasing the urinalysis reflex to culture threshold from >5 to ≥ 10 WBCs; and (4) clinical decision support (CDS) for ordering urine cultures for patients with indwelling catheters and for encouraging Foley catheter alternatives and catheter removal. Monthly, quality department representatives discuss unit level DURs with managers, who then discuss patient-level device use at daily huddles with physicians and advanced practice providers. Significance was determined using the 2-tailed *t* test. The results are listed in Table 1. **Discussion:** One year after the intervention, use of device alternatives increased 5-fold, CDS-driven ordering predominated, and the SIR and SUR remained significantly decreased. These successes are especially notable because, a ventricular-assist device program was launched in the postintervention period. By the end of the study, the program became the second-busiest of its type in the United States, resulting in a group of patients at high risk of device use and infection in the postintervention period, but absent in the preintervention period. Numerous reports of effective interventions for reducing CAUTI have been published, we found no large studies using the SUR as the main metric. The limitations of this study include the lack of a population SIR and data pertaining to catheter-related bacteriuria and antibiotic usage. However, this approach is easily customizable to any infection, device, and diagnostic test.

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An Interactive Sociotechnical Analysis of the Implementation of Electronic Decision Support in Antimicrobial Stewardship

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Background: There is great enthusiasm for the potential of decision support tools embedded in the electronic medical record to improve antimicrobial use in hospitals. Yet they are often limited in their ability to change prescriber behavior. Analyzing these tools using an interactive sociotechnical approach (ISTA) can identify

Table 1.

Table:

	Pre-intervention 09-01-17 to 09-15-18	Post-intervention 09-16-18 to 09-30-19	P value
Mean Monthly CAUTIs (SD)	6.69 (1.97)	3.08 (2.02)	0.0002
Mean Monthly Patient Days (SD)	27071 (1150)	26879 (961)	0.6544
CAUTI/ 10,000 Patient Days (SD)	2.49 (0.77)	1.15 (0.76)	0.0002
Mean Monthly Device Days (SD)	4582 (430)	3837 (357)	0.0001
CAUTI/ 1000 Device Days (SD)	1.47 (0.45)	0.80 (0.55)	0.0035
Mean Monthly Orders for Device Alternatives	9.00	131.43	
Mean Monthly Device-Alternative Days (SD)	108 (177)	541 (34)	<0.0001
Monthly Average SIR (SD)	1.31 (0.41)	0.70 (0.49)	0.0029
Monthly Average SUR (SD)	1.05 (0.09)	0.85 (0.07)	<0.0001
Mean monthly % of total urine culture orders that were CDS-driven	0%	55.91%	

barriers and facilitators to the implementation of electronic decision support (EDS) in antimicrobial stewardship. **Objective:** To examine prescriber and antimicrobial steward perceptions of EDS using an ISTA approach in the preimplementation phase of an antimicrobial stewardship intervention. **Methods:** We conducted semistructured interviews with prescribers and stewards from 4 hospitals in 2 health systems in the context of a multi-component intervention to improve the use of fluoroquinolones and extended-spectrum cephalosporins. Sites planned to implement various EDS elements including order sets, antimicrobial time outs, and audit with feedback stewardship notes in the medical record. Interviews elicited respondent perceptions about the planned intervention. Two analysts systematically coded transcripts using an ISTA framework in NVivo12 software. **Results:** Interviews with 64 respondents were conducted: 38 physicians, 7 nurses, 6 advanced practice providers, and 13 pharmacists. We identified 4 key sociotechnical interaction types likely to influence stewardship EDS implementation. First, EDS changes the communication patterns and practices of antimicrobial stewards in a way that improves efficiency but decreases vital social interaction with prescribers to facilitate behavior change. Second, there is a gap between what stewards envision for EDS and that which is possible to build in a timely manner by hospital information technology specialists. As a result, there is often a months- to years-long delay from proposal to implementation, which negatively affects intervention acceptance. Third, prescribers expressed great enthusiasm for stewardship EDS that would simplify their workload, allow them to complete important work tasks, and save time. They strongly objected to stewardship EDS that was disruptive without a compelling purpose or did not integrate smoothly with pre-existing technology infrastructure. Fourth, physician prescribers attributed social and emotional meaning to stewardship EDS, suggesting that these tools can undermine professional authority, autonomy, and confidence. **Conclusions:** Implementing stewardship EDS in a way that improves the use of antimicrobials while minimizing unintended negative consequences requires attention to the interplay between new EDS and an organization's existing workflow, culture, social interactions and technologies. Implementing EDS in stewardship will require attention to these domains to realize the full potential of these tools and to avoid negative unintended consequences.

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Analyzing Healthcare Workers' Perspectives on Healthcare-Associated Infections and Infection Control Practices Using Video Reflexive Ethnography (VRE)

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Background: This study explores the perspectives of healthcare workers on the healthcare-associated infection (HAI) and infection control measures in a tertiary-care unit, through a self-administered questionnaire, semi-structured interviews, and reflexive sessions based on video-recorded sterile procedures performed in respondents' work contexts. Video reflexive ethnography (VRE) is a method

that provides feedback to medical practitioners through reflection analysis, whereby practitioners identify problems and find solutions.

Methods: Quantitative questionnaire data were used to assess the knowledge of HAI among 50 healthcare workers and their attitude toward practice of infection control measures. Semistructured interviews based on an interview guide were used to collect qualitative data from 25 doctors and nurses. The interviews were audio recorded and transcribed verbatim immediately. Also, routine sterile procedures in the wards and intensive care unit were video recorded, and the footage was discussed by the infection control team and the personnel involved in the videos. This discussion was video recorded and transcribed. Both interview data and reflexive discussion of video-graph were analyzed using a thematic analysis. The quantitative data were analyzed using the Kruskal–Wallis test.

Results: The quantitative data revealed no difference in the knowledge, attitude, and practice scores used to evaluate the infection control practices among the healthcare workers. We identified 4 themes from the qualitative data: (1) knowledge of HAI and infection control, (2) infection control measures in practice, (3) the shortfall in infection control measures and HAI, and (4) required implementation. Although the qualitative data indicated that the participants had excellent compliance with hand hygiene and personal protective equipment (PPE) use, the VRE and reflexive sessions indicated otherwise. Some astounding lapses were revealed, like failure to engage in boundary maintenance between sterile and nonsterile areas, failure to observe proper hand hygiene measures, and use of traditional hijab face covers (used in an unsterile environment as well) instead of surgical masks. These findings demonstrate the advantage of combining VRE with qualitative and quantitative methodology to deduct the lapses in the practice of infection control among healthcare workers.

Conclusions: Introduction of training programs focused on HAI and infection control measures in the educational system will help better inform medical and nursing students. Live video demonstrations of appropriate infection control practices during sterile procedures would be highly beneficial to educate the healthcare workers on correct infection control practices. Lapses in the use of PPE can be a possible reason for the outbreak of MERS-CoV, an endemic disease, in this part of Saudi Arabia.

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Analysis of National Healthcare Safety Network *Clostridioides difficile* Infection Standardized Infection Ratio by Test Type

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Background: The NHSN has used positive laboratory tests for surveillance of *Clostridioides difficile* infection (CDI) LabID events since 2009. Typically, CDIs are detected using enzyme immunoassays (EIAs), nucleic acid amplification tests (NAATs), or various test combinations. The NHSN uses a risk-adjusted, standardized