

average of 37 mL per patient day in the first semester to 49 mL per patient day in the second semester. After the product change and the new hand hygiene campaign, a second relevant and sustained increase has taken place: the first 4-month average in 2019 was 67 mL per patient day. In the second survey, conducted with 187 HCWs, there was an increase in preference for alcohol-based product from a wall dispenser (from 38% to 62%).

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Poster Presentation

Strengthening Adherence to a Central-Line–Associated Bloodstream Infection Prevention Bundle in a Surgical ICU in Vietnam

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Background: Central-line–associated bloodstream infections (CLABSIs) increase the length of hospital stay, healthcare costs, and patient mortality. **Objective:** We conducted a quality improvement (QI) approach with plan-do-study-act (PDSA) cycle to strengthen adherence to a central-line (CL) maintenance bundle and to reduce CLABSI rate in a surgical intensive care unit (ICU) of children's hospital 1 (CH1). **Methods:** The baseline CLABSI rate per 1,000 CL days and the ratio of CL days to patient days (device utilization ratio; DUR) were captured for 12 months preceding the intervention. Baseline process indicators were captured for 2 months preceding implementation, including hand hygiene adherence, sterile technique for dressing change and CL access, CL hub cleaning, dating of CL components and daily chlorhexidine bathing. A multimodal intervention of clinician training, bedside checklist, and poster reminders of best practices was implemented. Process and outcome measures were monitored over 12 months of implementation. Z-test was used to calculate statistical significance before and after intervention. **Results:** Among 46 clinical ICU staff trained on a CLABSI maintenance bundle, mean pre- and posttest knowledge scores increased from 63% to 86%. Staff adherence to each CL care bundle element improved significantly ($P < .001$) and sustainably over the intervention period: hand hygiene adherence increased from 54% to 82%; sterile technique for dressing increased from 60% to 94%; sterile technique for CL access increased from 51% to 97%; hub scrubbing increased from 52% to 93%; dating of CL elements increased from 63% to 85%; daily chlorhexidine bathing increased from 52% to 87%. During the first 9 months, the CLABSI rate and the DUR decreased from 5.8 to 3.7 and from 0.43 to 0.41, respectively. In the following 2 months, the CLABSI rate increased to 12.7 while bundle adherence remained high. A root-cause analysis identified inadequate environmental hygiene and use of multidose saline bottles for multiple patients as potential factors. A PDSA cycle to improve these elements (enhanced cleaning; single-patient saline bottles) led to a decrease in the CLABSI rate from 12.7 to 3.0 after these efforts. **Conclusions:** This is the first time

CH1 has used quality improvement methodology to implement an HAI prevention enhancement, which proved effective at creating and sustaining adherence to a multimodal CL maintenance bundle and an overall decrease in CLABSI rates. A 2-month increase in CLABSI rates highlights the unique challenges faced in low-resource settings and demonstrates the need for IPC elements not captured in a typical CLABSI prevention bundle. The quality improvement methodology provided a structured approach to implementing change. This methodology will be used for additional patient safety improvements at CH1 and other Viet Nam hospitals interested in CLABSI prevention.

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Substance Use Diagnoses Among Persons with Community-Onset Methicillin-Resistant *Staphylococcus aureus* Bloodstream Infections

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Background: In recent years, the historic declines in the incidence of methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infections (BSIs) in the United States have slowed. We examined trends in the incidence of community-onset (CO) MRSA BSIs among hospitalized persons with and without substance-use diagnoses. **Methods:** Using data from >200 US hospitals reporting to the Premier Healthcare Database (PHD) during 2012–2017, we conducted a retrospective study among hospitalized persons aged ≥ 18 years. MRSA BSIs with substance use were defined as hospitalizations having both a blood culture positive for MRSA and at least 1 *International Classification of Disease, Ninth Revision, Clinical Modification* (ICD-9-CM) or ICD-10-CM diagnostic code for substance use including opioids, cocaine, amphetamines, or other substances (excluding cannabis, alcohol, and nicotine). MRSA BSIs were considered community onset when a positive blood culture was collected within 3 days of admission. We assessed annual trends and described characteristics of CO MRSA BSI hospitalizations, stratified by substance use. **Results:** Of 20,049 MRSA BSIs from 2012 to 2017, 17,634 (88%) were CO. Overall, MRSA BSI incidence decreased 7%, from 178.5 to 166.2 per 100,000 hospitalizations during the study period; However, CO MRSA BSI rates remained stable (152.7 to 149.9 per 100,000 hospitalizations). Among CO MRSA BSIs, 1,838 (10%) were BSIs with substance-use diagnoses; the incidence of CO MRSA BSIs with substance use increased 236% (from 8.2 to 27.6 per 100,000 hospitalizations) and represented a greater proportion of the CO MRSA rate over the study period (Fig. 1). The incidence of CO MRSA BSIs without substance use decreased 15% (from 144.5 to 122.4 per 100,000 hospitalizations). Patients with CO MRSA BSIs with substance use were younger (median, 40 vs 65 years), more likely to be female (50% vs 40%), white (79% vs 69%), and to leave against medical advice (15% vs 1%).