

commitment by hospital management and healthcare workers may be needed for further improvement.

Disclosures:

If I am providing recommendations involving clinical medicine, they will be based on evidence that is accepted within the profession of medicine as adequate justification for their indications and contraindications in the care of patients. All scientific research referred to will conform to the generally accepted standard of experimental design, data collection and analysis.

Disagree

If I am presenting research funded by a commercial company, the information presented will be based on generally accepted scientific principals and methods, and will not promote the commercial interest of the funding company.

Disagree

If I am discussing specific healthcare products or services, I will use generic names to extent possible. If I need to use trade names, I will use trade names from several companies when available, and not just trade names from any single company.

Disagree

I have disclosed all relevant financial relationships and I will disclose this information to learners.:

Disagree

Isata Adama Bangura

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Presentation Type:

Poster Presentation

The Importance of Environmental Screening in a Methicillin-Resistant *Staphylococcus aureus* (MRSA) Outbreak Investigation in a Transplant Unit

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Background: Methicillin-resistant *Staphylococcus aureus* (MRSA) colonization conveys a higher risk of invasive infection. The transplant cohort is a group of immunocompromised patients who are at higher risk of infection. We conducted an outbreak investigation of hospital-acquired MRSA colonization within the transplant unit, which led to the discovery of positive isolates within our environment and to changes in our hospital disinfection policies. **Methods:** Our transplant unit consists of 8 single, positive-pressure rooms housed separately at the side of a larger ward. Staffing from this unit differs from the rest of the shared ward that houses up to 60 patients. As part of hospital screening, we found that a patient admitted for a stem-cell transplant had acquired nosocomial MRSA colonization. Given the unusual occurrence of such an event, a root-cause analysis was conducted. **Results:** A meeting was convened together with nursing, medical staff, and ancillary staff. Identified areas of potential transmission were deemed equipment, staff, and patients, and screening was performed. Shared equipment included the portable electrocardiogram (ECG) machines and portable x-ray machines and boards. In particular, ECG machines were shared with the adjoining non-transplant oncology ward. The usual practice was to clean the machine after use but not prior to the next use. This was deemed a possible exposure risk in view of a recent MRSA outbreak in a separate section of the ward. Positive isolates were found on both the x-ray and ECG machines. All healthcare workers were screened and were negative for MRSA. Furthermore, 7 patients admitted during the same time period were also screened for MRSA and were

Table 1. Summary of Screening Results

Category	No. Screened	Positive Screens
ECG machines	2	1
X-ray machines	2	1
X-ray plates	2	0
Nurses	29	0
Doctors	9	0
Radiology staff	10	0
Housekeeping staff	8	0
Patients	7	0
Total	69	2

negative. Given the concurrent outbreak within the ward, pulsed-field gel electrophoresis was performed for all MRSA isolates obtained and the outbreak strain. These were found to be nonclonal (Table 1). Work processes for both the cleaning of ECG and x-ray machines were enhanced and modified. Hand hygiene measures to ward and radiology staff were reinforced. Thus far, no further cases have been detected. **Conclusions:** The environment is an important part of outbreak investigation. Shared equipment is often overlooked during day to day processes but should not be neglected. This can result in changes to hospital disinfection policy.

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Disclosures: Indumathi Venkatachalam reports receiving honoraria for speaking engagements for bioMérieux and Pfizer and serving on an expert panel for MSD Pharma.

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Poster Presentation

The Second Central Line Increases Central-Line-Associated Bloodstream Infection Risk by 80%: Implications for Inpatient Quality Reporting Programs

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Background: The NHSN methods for central-line-associated bloodstream infection (CLABSI) surveillance do not account for additive CLABSI risk of concurrent central lines. Past studies were small and modestly risk adjusted but quantified the risk to be ~2-fold. If the attributable risk is this high, facilities that serve high-acuity patients with medically indicated concurrent central-line use may disproportionately incur CMS payment penalties for having high CLABSI rates. We aimed to build evidence through analysis using improved risk adjustment of a multihospital CLABSI experience to influence NHSN CLABSI protocols to account for risks attributed to concurrent central lines. **Methods:** In a retrospective cohort of adult patients at 4 hospitals (range, 110–733 beds) from 2012 to 2017, we linked central-line data to patient encounter data (age, comorbidities, total parenteral nutrition, chemotherapy, CLABSI). Analysis was limited to patients with >2 central-line days, with either a single central line or concurrence of no more than 2 central lines where insertion and removal dates overlapped by >1 day. Propensity-score matching for likelihood of concurrence and

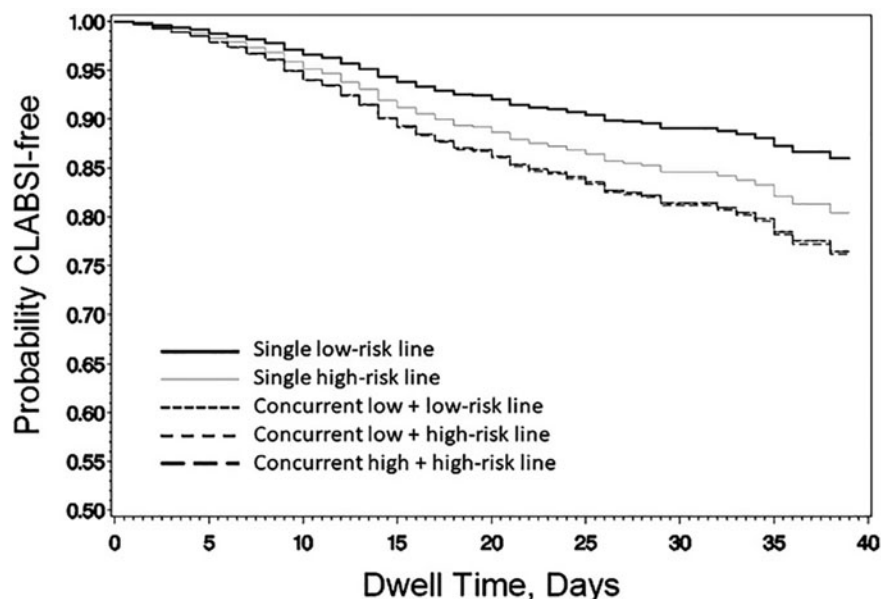


Fig. 1

conditional logistic regression modeling estimated the risk of CLABSI attributed to concurrence of >1 day. To evaluate in Cox proportional hazards regression of time to CLABSIs, we also analyzed patients as unique central-line episodes: low risk (ie, ports, dialysis central lines, or PICC) or high risk (ie, temporary or nontunneled) and single versus concurrent. **Results:** In total, 64,575 central lines were used in 50,254 encounters. Among these patients, 517 developed a CLABSI; 438 (85%) with a single central line and 74 (15%) with concurrence. Moreover, 4,657 (9%) patients had concurrence (range, 6%–14% by hospital); of these, 74 (2%) had CLABSI, compared to 71 of 7,864 propensity-matched controls (1%). Concurrence patients had a median of 17 NHSN central-line days and 21 total central-line days. In multivariate modeling, patients with more concurrence (>2 of 3 of concurrent central-line days) had a higher risk for CLABSI (adjusted risk ratio, 1.62; 95% CI, 1.1–2.3) compared to controls. In survival analysis, 14,610 concurrent central-line episodes were compared to 31,126 single low-risk central-line episodes; adjusting for comorbidity, total parenteral nutrition, and chemotherapy, the daily excess risk of CLABSI attributable to the concurrent central line was ~80% (hazard ratio 1.78 for 2 high-risk or 2 low-risk central lines; hazard ratio 1.80 for a mix of high- and low-risk central lines) (Fig. 1). Notably, the hazard ratio attributed to a single high-risk line compared to a low-risk line was 1.44 (95% CI, 1.13–1.84). **Conclusions:** Since a concurrent central line nearly doubles the risk for CLABSI compared to a single low-risk line, the CDC should modify NHSN methodology to better account for this risk.

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Disclosures: Scott Fridkin reports that his spouse receives consulting fees from the vaccine industry.

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Poster Presentation

Trends of Adult Antimicrobial Hospital Consumption in Catalonia (Spain) from 2008 to 2018

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Background: Antimicrobial resistance is a disturbing problem in the health system. A relationship between the use of certain antimicrobials and a resistance increase has been proposed. Since this phenomenon is not usually attributed to specific uses of antimicrobials but preferably to its evolution over the years, the analysis of the antimicrobial consumption over time can justify the epidemiological situation of a given region in terms of resistance and possible increases and decreases for specific microorganisms. The objective of this study was to analyze the evolution of the use of antimicrobials in Catalonia during 2008–2018 through the VINCAT program (Infection Control and Antimicrobial Stewardship Catalan Program). **Methods:** The number of hospitals participating in the VINCAT increased from 46 in 2008 to 63 in 2018 (ie, 68.8% and 85.7% of all adult acute-care hospital beds in Catalonia, respectively). Hospitalization days recorded at the participating hospitals increased from 2,991,053 in 2008 to 3,714,938 in 2018. The Anatomical Therapeutic Chemical Classification (ATC) defined daily dose (DDD) index was used for monitoring antimicrobial consumption. Simple linear regressions were performed, the linear relationship was checked by ANOVA tests, and the Pearson correlation (P_c) coefficients were obtained. Values of $P \leq .05$ were considered statistically significant. **Results:** From 2008 to 2018, there was a statistically significant increase of global antibacterial consumption (65.50 vs 71.73 DDD per 100 bed days; $P = .001$) and antimycotic consumption (3.09 vs 3.45 DDD per 100 bed days, $P = .012$) due to an increase of consumption in the surgical units. At the same time, there was a decrease in the consumption of antimycotics in the medical units (4.35 vs 3.90 DDD per 100 bed days; $P = .029$).