

criteria between the groups. The χ^2 test was used, and the magnitude of the association was calculated as a rate ratio with a 95% confidence interval, adjusted using a Poisson regression model. **Results:** Overall, 1,132 patients were included in the study: 595 in units with water tap filters and 537 in units without water tap filters. HAI incidence among patients in units with water tap filters was 5.3 per 1,000 person days stay; without water tap filters, HAI incidence was 4.7 per 1,000 person days stay (HR, 0.94; 95% CI, 0.47–1.90). **Conclusions:** The preliminary results of this study indicate a lower incidence of *P. aeruginosa* HAIs in units with filters placed in water taps than in units without filters.

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Presentation Type:

Poster Presentation

Effectiveness of Standard Daptomycin Dose in Treatment of Methicillin-Resistant *Staphylococcus aureus* Bacteremia

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Background: Daptomycin is considered an effective alternative to vancomycin in patients with methicillin-resistant *Staphylococcus aureus* bloodstream infection (MRSA BSI). **Objective:** We investigated the real-world effectiveness of recommended daptomycin doses

compared with vancomycin. **Methods:** This nationwide retrospective cohort study included patients from 124 Veterans' Affairs hospitals who had a MRSA BSI and were initially treated with vancomycin during 2007–2014. Patients were categorized into 3 groups by daptomycin dose calculated using adjusted body weight: low (<6 mg/kg/day), standard (6–8 mg/kg/day), and high (\geq 8 mg/kg/day). *International Classification of Diseases, Ninth Revision (ICD-9)* diagnosis codes were used to identify other prior or concurrent infections and comorbidities. Multivariate cox regression was used to compare 30-day all-cause mortality as the primary outcome comparing patients on either low-dose, standard-dose, or high-dose daptomycin with vancomycin. Hazard ratio (HR) and 95% confidence intervals (CIs) were reported. **Results:** Of the 7,518 patients in the cohort, 683 (9.1%) were switched to daptomycin after initial treatment with vancomycin for their MRSA BSI episode. A low dose of daptomycin was administered to 181 patients (26.5%), a standard dose was given to 377 patients (55.2%), and a high dose was administered to 125 patients (18.3%). Dose groups differed significantly in body mass index (BMI), presence of an osteomyelitis diagnosis, and diagnosis of diabetes. Thirty-day mortality was significantly lower in daptomycin patients than in those given vancomycin (11.3% vs 17.6%; $P < .0001$). Treatment with daptomycin was associated with improved 30-day survival compared with vancomycin (HR, 0.66; 95% CI, 0.53–0.84), after adjusting for age, BMI, diagnosis of endovascular infection, skin and soft-tissue infection and osteomyelitis, hospitalization in the prior year, immunosuppression, diagnosis of diabetes, and vancomycin minimum inhibitory concentration (MIC). Treatment with a standard dose of daptomycin was associated with lower mortality compared with vancomycin (HR, 0.63; 95% CI, 0.46–0.86). High and low daptomycin dose groups had a trend toward improved 30-day survival compared with vancomycin (Fig. 1). In 2 separate sensitivity analyses excluding vancomycin patients, there

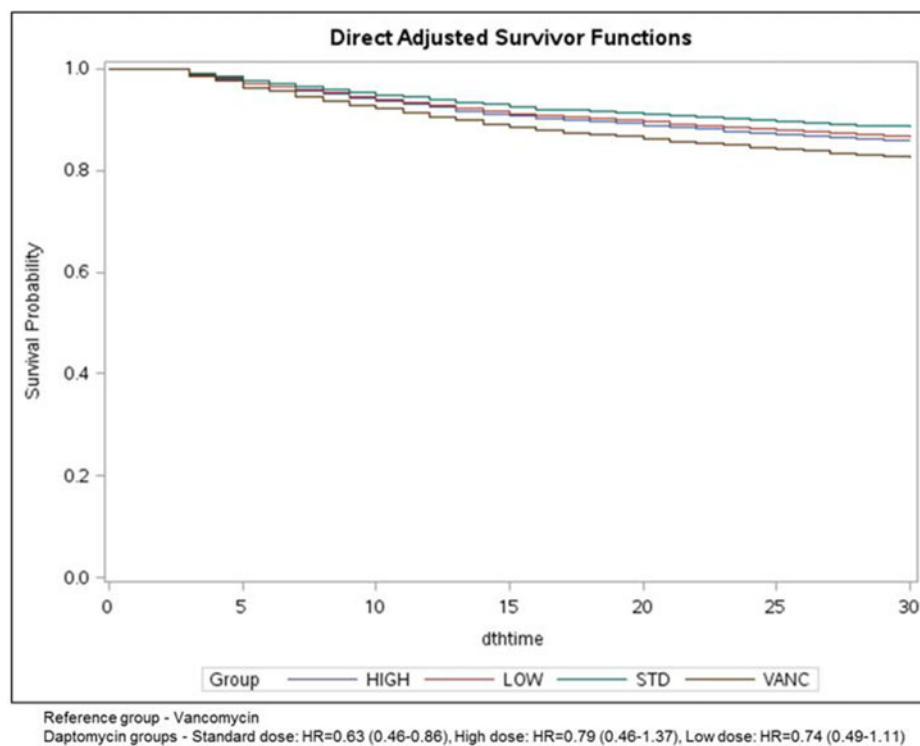


Figure. Risk-adjusted Kaplan-Meier Survival Curve for comparison of Daptomycin dose groups with Vancomycin. The top line is standard dose, followed by low and high dose of daptomycin. The bottom line is vancomycin.

Fig. 1.

was no difference in 30-day mortality between a standard dose and a high dose (HR, 1.01; 95% CI, 0.51–1.97). However, we detected a trend toward poor survival with a low dose compared with a standard dose (HR, 1.21; 95% CI, 0.73–2.02). **Conclusions:** A standard dose of daptomycin was significantly associated with lower 30-day mortality compared with continued vancomycin treatment. Accurate dosage of daptomycin and avoidance of low-dose daptomycin should be a part of good antibiotic stewardship practice.

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Effects of Irregularities in the Microstructure of Surgical Instruments on Microbial Adherence and Challenges for Processing

Figure 1. Scanning electron microscopy of surfaces of surgical instruments. Belo Horizonte, Minas Gerais, Brazil, 2019.

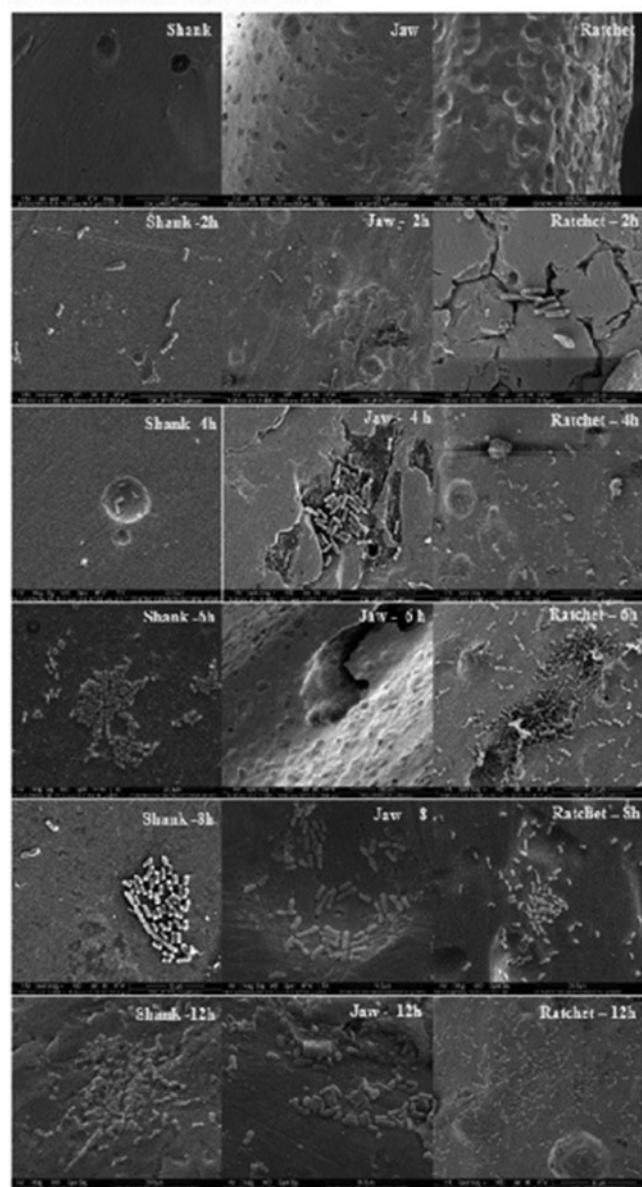


Fig. 1.

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Background: A surgical instrument can have areas that pose different challenges to cleaning, hindering the removal of dirt. This can directly impact the effectiveness of its processing while potentially promoting cross contamination. Moreover, structural changes (ie, cracks or fissures) on the instrument surface, although rarely addressed, can act as reservoirs for microorganisms, contributing to organic matter retention, microbial growth, and biofilm formation. Our aim was to determine the effect of irregularities in the microstructure of surgical instruments on microbial adherence. **Methods:** We analyzed 18 fragments of 3 distinct areas of new crile forceps: the ratchet, shank, and jaw. Of these fragments, 15 were artificially contaminated by immersion in tryptic soy broth containing 10×6 CFU/mL of *Escherichia coli* (ATCC 25922), for 4, 6, 8, and 12 hours of incubation at 37°C with agitation at 100 rpm. The other 3 fragments were used as controls. All fragments were subjected to scanning electron microscopy to evaluate the adhesion of the microorganism. **Results:** An irregular surface was found in 3 of 6 shank fragments (50%) (Fig. 1) and in all the jaw and ratchet fragments, grooves, and cracks. Initially, there was less adherence of *E. coli* to the smooth shank surface after contamination, but the concentration of the microorganism increased progressively over time in relation to that in the jaw or ratchet at the same time, and a higher concentration occurred in the cracks and grooves. **Conclusions:** Structural damage was observed in all fragments, especially in the ratchet and jaw areas, favoring microbial accumulation. Microorganisms housed in the cracks and grooves were better protected from removal by scrubbing with a brush (being unlikely to reach them), making these areas a microbial reservoir and source of contamination. Prolonged contact of the instrument with the contaminating microorganism allowed for greater adherence, even on the smooth areas. The results support the relevance of the early onset of cleaning, considering that even microscopic changes on the surface of the instrument may represent an additional challenge to its effective processing.

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Efficacy of a Sink Tailpiece Heating Device to Decrease Microbial Colonization of Sink Drains

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Background: Many institutions have reported transmission of multidrug-resistant organisms to patients from colonized sinks. Prior data have shown that bacterial colonization of the sink drain, which can occur via biofilm from a colonized p-trap or via seeding from above, results in dispersion of bacteria in the area of the sink when water from the faucet comes in contact with the drain. Heat disruption of biofilm formation between the p-trap and sink drain is a potential strategy in preventing colonization of sink drains. **Methods:** In an academic