studies in which participating hospitals received contributed antiseptic product) **Syma Rashid, MD**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)**Stryker (Sage)** (Other Financial or Material Support, Conducted clinical trials and studies in which participating hospitals and nursing homes received contributed antiseptic product)**Xttrium** (Other Financial or Material Support, Conducted clinical trials and studies in which participating hospitals and nursing homes received contributed antiseptic product) **Katherine Haffenreffer, BS**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)**Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Lauren Shimelman, BA**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)**Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Caren Spencer-Smith, MS**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)**Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Selsebil Sljivo, MPH**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Ed Rosen, BS**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Russell Poland, PhD**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Micaela H. Coady, MS**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)**Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Eunice J. Blanchard, MSN RN**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Kimberly Reddish, DNP**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Brandon Carver, BA**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Kimberly N. Smith, MBA**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Jason Hickok, MBA**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)**Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Karen Lolans, BS**, **Medline** (Research Grant or Support) **Nadia Khan, BS**, **Medline** (Research Grant or Support) **John A. Jernigan, MD, MS**, Nothing to disclose **Kenneth Sands, MD, MPH**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Jonathan B. Perlin, MD, PhD**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)**Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Richard Platt, MD, MSc**, **Medline** (Research Grant or Support, Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)**Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)

5. The PROTECT Trial: A Cluster Randomized Clinical Trial of Universal Decolonization with Chlorhexidine and Nasal Povidone Iodine Versus Standard of Care for Prevention of Infections and Hospital Readmissions among Nursing Home Residents

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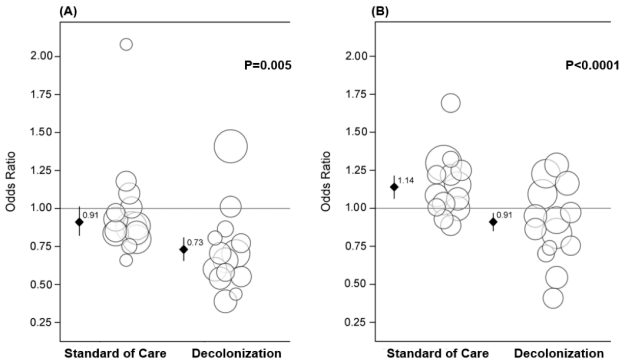
Session: O-01. Addressing MDRO Colonization and Infection

Background. Nursing home (NH) residents are at high infection and hospital readmission risk. Colonization with multidrug-resistant organisms (MDROs) is common. In ICU and post-hospital discharge settings, decolonization has reduced infection rates. However, the effectiveness of this strategy in NHs is unclear.

Methods. We performed a cluster randomized trial of 1:1 universal decolonization (decol) vs standard of care bathing (control) in 28 California NHs. After an 18 month baseline evaluation of hospitalization rates due to infection and MDRO prevalence, NHs were randomized to decol or control. Decol consisted of 1) chlorhexidine bathing; 2) nasal povidone iodine bid on admission x 5d and then M-F biweekly x 18 mo. Primary outcome was the probability that a transfer to a hospital was due to infection. Secondary outcome was the probability that a NH discharge was to a hospital.

Results. Four of 28 NHs dropped from the trial (3 decol, 1 control). Mean facility baseline of hospital transfers due to infection was 58% and 57% in the control and decol groups. In the intervention period, proportions were 57% and 48% in the control and decol groups. When accounting for clustering within NHs, hospital transfers due to infection had an OR of 0.91 (95% CI: 0.82-1.02) in the control group and an OR of 0.73 (95% CI: 0.56-0.95) in the decol group when comparing intervention to baseline period. For the primary outcome, decol had a 18% greater impact v. control (P=0.005, Fig. A). Baseline proportion of NH discharges due to hospitalization was 37% and 39% in the control and decol groups. In the intervention period, proportions were 36% and 33%. When accounting for clustering within NHs, the proportion of discharges due to hospitalization had an OR of 1.14 (95% CI: 1.06-1.22) in the control group and 0.91 (CI: 0.77-1.07) in the decol group when comparing the intervention period to the baseline period. For the secondary outcome, decol had a 23% greater impact v. control (P< 0.0001, Fig. B).



In this figure, each nursing home is represented by a circle. The size of the circle represents the amount of contributed patient days to the trial. The groups represent "as randomized" categories. Panel A) compares the probability that a transfer to a hospital was due to infection; panel B) compares the probability that a nursing home discharge was to a hospital. The y-axis represents the odds ratio of these probabilities comparing the baseline to the intervention period. The p values represent the significance of the difference between groups (the trial effect).

Conclusion. Universal NH decolonization with chlorhexidine and nasal iodophor significantly reduced the proportion of transfers to hospitals due to infection and discharges due to hospitalization. Our findings suggest that NH decolonization reduces serious infections and can decrease morbidity in this vulnerable population.

Disclosures. **Loren G. Miller, MD, MPH**, **Medline** (Grant/Research Support, Other Financial or Material Support, Contributed product) **Stryker** (Other Financial or Material Support, Contributed product) **Xttrium** (Other Financial or Material Support, Contributed product) **James A. McKinnell, MD**, **Medline** (Grant/Research Support) **Raveena Singh, MA**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals and nursing homes received contributed antiseptic and cleaning products) **Stryker (Sage)** (Other Financial or Material Support, Conducted studies in which participating hospitals and nursing homes received contributed antiseptic products) **Xttrium** (Other Financial or Material Support, Conducted studies in which participating hospitals and nursing homes received contributed antiseptic products) **Gabrielle Gussin, MS**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals and nursing homes received contributed antiseptic and cleaning products) **Stryker (Sage)** (Other Financial or Material Support, Conducted studies in which participating hospitals and nursing homes received contributed antiseptic products) **Xttrium** (Other Financial or Material Support, Conducted studies in which participating hospitals and nursing homes received contributed antiseptic products) **Ken Kleinman, PhD**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic products) **Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic products) **Raheeb Saavedra, AS**, **Medline** (Other Financial or Material Support, Conducted studies in which participating hospitals and nursing homes received contributed antiseptic and cleaning products) **Stryker (Sage)** (Other Financial or Material Support, Conducted studies in which participating hospitals and nursing homes received contributed antiseptic products) **Xttrium** (Other Financial or Material Support, Conducted studies in which participating hospitals and nursing homes received contributed antiseptic products) **Lauren Heim, MPH**, **Medline** (Other Financial or Material Support, Conducted clinical trials and studies in which participating hospitals and nursing homes received contributed antiseptic and cleaning products) **Molnlycke** (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) **Stryker (Sage)** (Other Financial or

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6. *Staphylococcus aureus* in a Single Blood Culture Bottle: Should We be Concerned?

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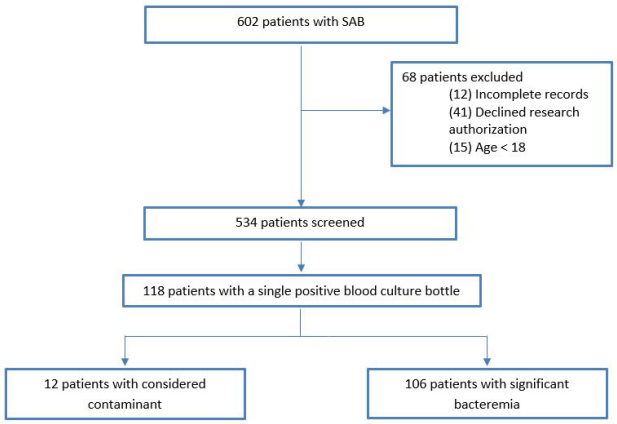
Session: O-02. Blood Stream Infections and Sepsis

Background. *Staphylococcus aureus* bacteremia (SAB) is common and is characterized by high rates of morbidity and mortality. The clinical importance of a single positive blood culture bottle (SPBCB), however, is poorly defined despite it being a frequent laboratory finding. We therefore examined patients with SPBCB to determine its clinical significance and to understand the rationale of current practice.

Methods. We performed a retrospective, multicenter study of patients with a SPBCB for *S. aureus* in initial cultures from January 2019 to December 2019 using data collected from both electronic health records and the clinical microbiology laboratory.

Figure 1. Study Population



Results. Overall, 534 patients with SAB were identified, and 118 (22.1%) had a SPBCB. Among SPBCB cases, 106 (89.3%) were classified as clinically significant while 12 were considered contaminated or of unclear clinical significance. Baseline characteristics were similar between the groups (Table 1). A majority (92.4%) received antibiotic therapy, but patients with clinically significant bacteremia were treated with a longer antibiotic course (25.9 vs 5.7 days, p< 0.001). Outcomes between those with SPBCB (contaminant vs clinically significant) were similar (Table 2). Of note, while there was no difference in use of echocardiography based on PREDICT criteria between the clinically significant SPBCB vs. the multiple positive blood culture bottles (MPBC) cohorts (Table 3), significant differences were seen in both frequency of echocardiography (65.1% vs. 84.6%, P< 0.001) and IE diagnosis (3.8% vs. 14.2%, P=0.002) for patients in the SPBCB vs. MPBC groups, respectively. In addition, those with MPBC had higher 90-day, 6-month and 1-year mortality rates.

Table 1. Clinical features of patients with a single positive culture considered a contaminant/unclear significance vs clinically significant.

Characteristic	Contaminant/unclear significance (n=12)	Significant (n=106)	Total (n=118)	P-value
Age, years, mean (SD)	55.1 (16.9)	63.5 (17.6)	62.7 (17.6)	0.091[1]
Male, n (%)	6 (50.0)	59 (55.6)	65 (55.1)	0.766[2]
Body mass index, kg/m², mean (SD)	27.7 (9.2)	30.5 (9.5)	30.2 (9.5)	0.273[1]
Charlson comorbidity index, mean (SD)	3.7 (1.6)	5.1 (3.3)	4.9 (3.2)	0.112[1]
Comorbidities, n (%)				
Injection drug use	0	5 (4.7)	5 (4.2)	1.000[2]
Myocardial infarction	1 (8.3)	26 (24.5)	27 (22.9)	0.292[2]
Congestive heart failure	2 (16.7)	28 (26.4)	30 (25.4)	0.728[2]
Peripheral vascular disease	0	14 (13.2)	14 (11.9)	0.356[2]
Chronic obstructive pulmonary disease	1 (8.3)	17 (16.0)	18 (15.3)	0.690[2]
Connective tissue disease	2 (16.7)	8 (7.5)	10 (8.5)	0.269[2]
Liver disease	1 (8.3)	9 (8.5)	10 (8.5)	1.000[2]
Diabetes mellitus	2 (16.7)	54 (50.9)	56 (47.5)	0.102[2]
Moderate to severe chronic kidney disease[a]	3 (25.0)	25 (23.6)	28 (23.7)	1.000[2]
Malignancy	3 (25.0)	23 (21.7)	26 (22.0)	0.725[2]
Cardiac prosthetic device	0	9 (8.5)	9 (7.6)	0.595[2]
Prosthetic valve	0	3 (2.8)	3 (2.5)	1.000[2]
Permanent pacemaker	0	4 (3.8)	4 (3.4)	1.000[2]
AICD	0	1 (0.9)	1 (0.8)	1.000[2]
CRT	0	1 (0.9)	1 (0.8)	1.000[2]
VAD	0	1 (0.9)	1 (0.8)	1.000[2]
MRSA	2 (16.7)	29 (27.4)	31 (26.3)	0.730[2]
Acquisition				1.000[2]
Community, n (%)	5 (41.7)	39 (36.8)	44 (37.3)	
Healthcare-associated, n (%)	7 (58.3)	62 (58.5)	69 (58.5)	
Nosocomial, n (%)	0	5 (4.7)	5 (4.2)	
ICU admission	2 (16.7)	25 (23.8)	27 (23.1)	0.096[2]
Duration of symptoms > 7 days, n (%)	2 (16.7)	44 (41.5)	46 (39.0)	0.124[2]
Daily blood cultures	4 (33.3)	72 (67.9)	76 (64.4)	**0.026[2]**
Duration of BSI, mean (SD)	1.8 (0.9)	1.8 (1.3)	1.8 (1.2)	0.570[1]
% of patients w/ BSI > 72 hours	1 (10.0)	14 (15.1)	15 (14.6)	1.000[2]
Time to positivity, median hours [IQR]	21.2 (11.1)	25.0 (15.3)	24.6 (15.0)	0.223[1]
PREDICT score day 1, mean (SD)	1.4 (0.5)	1.4 (0.8)	1.4 (0.8)	0.803[1]
PREDICT score day 5, mean (SD)	1.4 (0.5)	1.8 (1.1)	1.7 (1.1)	0.376[1]
Complicated bacteremia, n (%)	3 (25.0)	56 (52.8)	59 (50.0)	0.125[2]
Infective endocarditis	0	4 (3.8)	4 (3.4)	1.000[2]
Osteomyelitis	1 (8.3)	13 (12.3)	14 (11.9)	1.000[2]
Number of patients treated	8 (66.7)	101 (95.3)	109 (92.4)	**0.006[2]**
Inpatient IV antimicrobial duration, mean (SD)	5.4 (2.1)	9.0 (6.7)	8.7 (6.5)	0.144[1]
Outpatient IV antimicrobial duration, mean (SD)	5.5 (2.1)	21.5 (15.4)	21.0 (15.4)	0.051[1]
Outpatient oral antimicrobial duration, mean (SD)	4.7 (3.2)	32.7 (44.1)	29.6 (42.4)	**0.020[1]**
Total antibiotic duration, mean (SD)	5.7 (5.0)	25.9 (21.6)	23.8 (21.4)	**< 0.001[1]**

[1] Kruskal-Wallis rank sum test
[2] Fisher's Exact Test for count data
Data presented in means (standard deviation) or no. (%).
Abbreviations: BSI, bloodstream infection; IR, interventional radiology; IV, intravenous; MIC, minimal inhibitory concentration; n, number.
[a]Moderate = creatinine >3 mg/dL (0.27 mmol/L). Severe = on dialysis, status post kidney transplant, uremia.

Table 2. Comparison of outcomes in patients with a single positive culture considered a contaminant or of unclear significance compared with those considered clinically significant

Characteristic	Contaminant, Single Positive (n=12)	Clinically Significant, Single Positive (n=106)	Total (n=118)	P-value
Hospital length of stay, days, mean (SD)	6.6 (7.0)	9.7 (9.0)	9.45 (8.8)	0.229[1]
Mortality, n (%)	4 (33.3)	31 (29.5)	35 (29.9)	0.750[2]
30-day mortality	0	15 (14.2)	15 (12.7)	0.359[2]
60-day mortality	0	18 (17.0)	18 (15.3)	0.209[2]
90-day mortality	0	18 (17.0)	18 (15.3)	0.209[2]
6-month mortality	1 (8.3)	23 (21.7)	24 (20.3)	0.455[2]
1-year mortality	1 (8.3)	28 (26.4)	29 (24.6)	0.289[2]
90-day relapse, n (%)	0	1 (0.9)	1 (0.8)	1.000[2]

[1] Kruskal-Wallis rank sum test
[2] Fisher's Exact Test for count data