2.8–81, $P = 0.0004$). However, children in the placebo group were only 1.1 times more likely to be colonized with MRSA after one month compared with the retapamulin group (OR 1.1, CI 0.3–3.9, $P = 1$). (*Full data analysis currently in progress with additional results available soon.)

Conclusion. In this small pilot randomized trial, children who received retapamulin had a significantly lower rate of MRSA colonization and higher rates of clearance compared with placebo at one week post decolonization, but no significant difference at the one month mark. These data suggest that retapamulin is a promising alternative short-term nasal and peri-rectal decolonzing therapy in order to prevent infections and the spread of this mupirocin-resistant MRSA clone among pediatric patients in this affected community and our hospital.

Disclosures. **All authors:** No reported disclosures.

569. Evaluation of a Povidone-Iodine Preparation for Nasal Decolonization of Methicillin-Resistant *Staphylococcus aureus*

Hussein Abou Ghaddara, MD[1]; Jennifer Cadnum, BS[2];
Y. Karen Ng Wong, MD[2] and Curtis Donskey, MD[3]; [1]University Hospitals, Cleveland, Ohio; [2]Northeast Ohio VA Healthcare System, Cleveland, Ohio; [3]Cleveland VA Medical Center, Cleveland, Ohio

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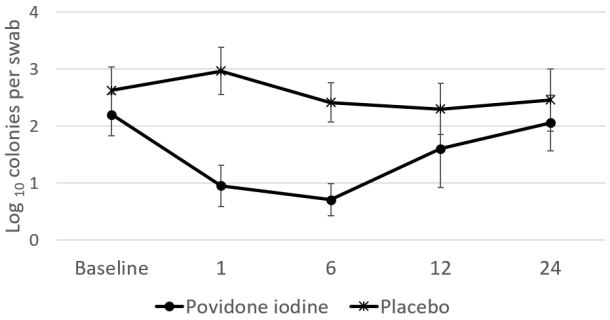
Background. Mupirocin is commonly used for nasal decolonization of *Staphylococcus aureus*, but it has limitations including frequent emergence of resistance and non-adherence due to the need for repeated applications. Povidone-iodine is increasingly used as an alternative for nasal decolonization because it has a low propensity for emergence of resistance and rapid in vitro antibacterial activity. However, limited data are available on the microbiological efficacy of povidone-iodine for suppression of nasal *S. aureus*.

Methods. We compared the effectiveness of a single application or 5 days of twice daily application of a commercial 10% povidone-iodine preparation vs. phosphate-buffered saline for a reduction in nasal MRSA in methicillin-resistant *S. aureus* (MRSA)-colonized patients (9–11 per treatment group). Nasal swabs were collected for quantitative culture of MRSA before and at 1, 6, 12 and 24 hours after the single application or before each dose for the 5-day regimen. Analysis of variance was used to compare MRSA colony counts in povidone iodine vs. control patients.

Results. The concentrations of MRSA in the nares were similar for povidone-iodine and control group patients prior to treatment. As shown in the figure, the single application of povidone-iodine resulted in a statically significant reduction in nasal MRSA in comparison to controls at 2 and 6 hours after treatment (P10 colonies per swab).

Conclusion. Our findings suggest that single preoperative applications povidone-iodine could be useful for short-term suppression of *S. aureus* during the perioperative period. Additional studies are needed to evaluate the efficacy of the povidone-iodine preparation for MRSA decolonization when used at more frequent dosing intervals or in combination with chlorhexidine bathing.

Figure. Effect of a single application of povidone iodine versus phosphate-buffered saline on concentration of nasal MRSA



Disclosures. **All authors:** No reported disclosures.

570. Impact of Discontinuation of Methicillin-Resistant *Staphylococcus aureus* Contact Precautions on Bloodstream Infection Rates at an Academic Medical Center

Bhagyashri D. Navalkele, MD, FACP; Sheila Fletcher, BSN, RN, CIC;
Nora Truhett, RN; Xiaoming Hester, RN, MSN, MBBS, LGB;
Sanjosa Martin, MSN, RN; Elizabeth Smith, BSN, RN ; Regina Galloway;
Lisa Stempak, MD; Cynthia Allard; Willis Hayes and
Jason Parham, MD, MPH, FACP, FIDSA; University of Mississippi Medical Center, Jackson, Mississippi

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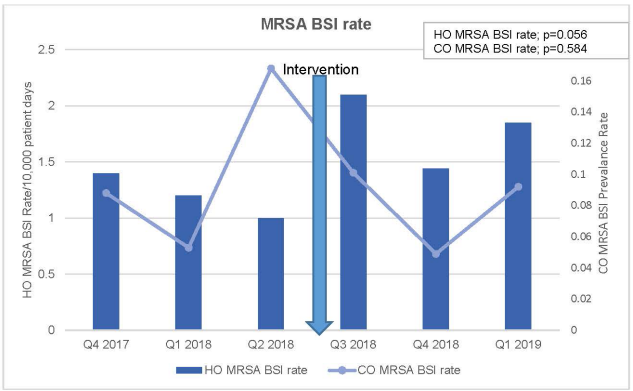
Background. Contact precautions (CP) in methicillin-resistant *Staphylococcus aureus* (MRSA) patients along with hand hygiene has been considered a gold standard to prevent transmission. The actual impact of these measures in reducing MRSA infections is still controversial. At our institution, we evaluated the impact of discontinuation of MRSA CP on hospital-onset (HO) and community-onset (CO) MRSA bloodstream (BSI) rates. We also analyzed consequential cost savings.

Methods. The University of Mississippi Medical Center is a 700+ bed academic facility located in Jackson, MS. Patients admitted to any inpatient units with diagnoses or history of MRSA infection or colonization were subjected to CP during their stay. In July 2018, we discontinued MRSA CP across all inpatient units (except neonatal intensive care unit). HO MRSA BSI rate was calculated per National Healthcare Safety Network (NHSN) laboratory-identified event. CO MRSA BSI was reported per NHSN admission prevalence rate. One-way Analysis of Variance (ANOVA) was performed to compare pre-and post-intervention data.

Results. There was a rise in HO MRSA BSI rate after discontinuation of CP (July 2018-March 2019) in comparison to the 9-month pre-intervention period (October 2017-June 2018); however, the difference was not statistically significant (1.79/10,000 patient-days vs. 1.2/10,000 patient-days; $P = 0.056$). Similarly, CO MRSA BSI prevalence rate did not show a statistically significant difference between pre- and post-intervention period (0.103 vs. 0.08; $P = 0.584$).The total annualized cost savings on personal protective equipment (PPE) was an estimated $193,398 post-intervention. Hand hygiene (HH) compliance was higher in post-intervention compared with pre-intervention period (83% vs. 78%, $P = 0.0007$).

Conclusion. At our institute, discontinuation of MRSA CP was associated with an insignificant rise in HO MRSA BSI rates. No impact was observed on CO MRSA BSI prevalence. We had a 34% reduction in PPE expenditure. We observed an increase in HH compliance post-discontinuation of CP, but it did not reduce MRSA BSI rates. Further studies are needed to evaluate the impact of bundling hand hygiene practices with other horizontal strategies (prevention bundles, chlorhexidine bathing, environmental disinfection practices) in prevention of MRSA infections.



Disclosures. **All authors:** No reported disclosures.

571. Determining the Utility of Methicillin-Resistant *Staphylococcus aureus* Nares Screening in Antimicrobial Stewardship

Kari A. Mergenhagen, PharmD[1]; Kaitlyn Victor, PharmD[2];
John Sellick, DO, MS[2]; Bethany A. Wattengel, PharmD[2];
Zarchi Sumon, MD[2] and Alan Lesse, MD [3]; [1]VA Buffalo, Getzville, New York; [2]VA WNY Healthcare System, Buffalo, New York; [3]Jacobs School of Medicine, Buffalo, New York

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Background. Treatment of suspected Methicillin-resistant *Staphylococcus aureus* (MRSA) is a cornerstone of many antibiotic regimens; however, some anti-MRSA antibiotics are associated with toxicity. The Veterans Affairs (VA) screens each patient on admission for MRSA nares colonization. The objective of this study was to determine whether MRSA nares screening can be used as a stewardship tool for de-escalation as well as avoidance of anti-MRSA therapy.

Methods. This was a retrospective cohort study across VA medical centers nationwide from January 1, 2007 to January 1, 2018. Data from patients with MRSA nares screening were obtained from the Corporate Data Warehouse. Subsequent clinical cultures within 7 days of the nares swab were evaluated for the presence of MRSA. Sensitivity, specificity, positive predictive values (PPVs), and negative predictive values (NPVs) were calculated for the entire cohort, as well as subgroups for specific culture sites. Cultures were considered to be from a sterile site if they were from a fluid/aspirate, bone, tissue, or blood taken from the periphery. NPVs and PPVs were calculated for each of these sterile sites.

Results. A total of 447,579 clinical cultures were included in the final analysis. The NPV of MRSA nares screening for ruling out MRSA was 95.7% for all cultures submitted. The sensitivity and specificity for positive clinical cultures were 67.4% and 83%, respectively. The NPV for bloodstream infections ($n = 64,128$) was 96.2% for intra-abdominal cultures ($n = 8,071$) was 97.9%, for respiratory cultures ($n = 75,242$) was 95.3%, for wound cultures ($n = 95,832$) was 90.4%, and for renal cultures ($n = 164,330$) was 99.1%. NPVs for sterile sites are as follows: intra-abdominal ($n = 7,426$) was 98.1%, respiratory ($n = 15,583$) was 95.2%, wound ($n = 51,793$) was 91%.

Conclusion. MRSA nares screening has a high NPV and specificity for ruling out potential MRSA infections at a variety of culture sites including bloodstream, intra-abdominal, respiratory, renal, and wounds. MRSA nares screening is a powerful stewardship tool for de-escalation and avoidance of empirical anti-MRSA therapy.

Efficacy Characteristics of MRSA Nares Screening by Culture Site

Type	Number	Male	Age	Sensitivity	Specificity	Positive Predictive Value	Negative Predictive Value	P value MRSA
Whole cohort								
Whole cohort	447,579	430,356 (96.2%)	68.3 +/- 12.4	67.4% 95% CI (67.0%-67.9%)	83.0% 95% CI (82.8%-83.1%)	31.4% 95% CI (31.2%-31.6%)	95.7% 95% CI (95.6%-95.7%)	<0.0001
Blood								
Blood	64,128	62,265 (97.1%)	68.1 +/- 11.9	69.9% 95% CI (68.7%-71.0%)	82.5% 95% CI (82.1%-82.8%)	30.1% 95% CI (29.6%-30.6%)	96.2% 95% CI (96.1%-96.3%)	<0.0001
Intra-abdominal								
Intra-abdominal	8,071	7,754 (96.1%)	65.0 +/- 11.4	64.0% 95% CI (59.1%-68.6%)	90.9% 95% CI (90.2%-91.5%)	27.2% 95% CI (25.2%-29.2%)	97.9% 95% CI (97.7%-98.2%)	<0.0001
Intra-abdominal sterile	7,426	7,135 (96.1%)	65.2 +/- 11.3	62.5% 95% CI (57.1%-67.8%)	91.0% 95% CI (90.3%-91.7%)	24.5% 95% CI (22.5%-26.7%)	98.1% 95% CI (97.8%-98.4%)	<0.0001
Pulmonary								
Respiratory tract	75,242	73,575 (97.8%)	68.8 +/- 11.4	76.2% 95% CI (75.4%-77.0%)	83.1% 95% CI (82.8%-83.4%)	43.8% 95% CI (43.3%-44.3%)	95.3% 95% CI (95.1%-95.4%)	<0.0001
Sterile Respiratory	15,583	15,204 (97.6%)	67.0 +/- 11.0	74.6% 95% CI (72.7%-76.4%)	84.7% 95% CI (84.1%-85.3%)	44.7% 95% CI (43.6%-45.9%)	95.2% 95% CI (94.9%-95.6%)	<0.0001
Renal System								
Renal system	164,330	155,547 (94.7%)	71.0 +/- 12.7	72.5% 95% CI (71.1%-73.8%)	81.6% 95% CI (81.4%-81.8%)	9.8% 95% CI (9.6%-10.0%)	99.1% 95% CI (99.0%-99.1%)	<0.0001
Wound								
Wound	95,832	92,816 (96.7%)	64.7 +/- 11.9	59.7% 95% CI (59.0%-60.5%)	85.5% 95% CI (85.2%-85.7%)	48.1% 95% CI (47.5%-48.6%)	90.4% 95% CI (90.3%-90.6%)	<0.0001
Wound Sterile	51,793	50,180 (96.9%)	64.4 +/- 11.3	58.3% 95% CI (57.3%-59.3%)	87.6% 95% CI (87.3%-88.0%)	49.6% 95% CI (48.9%-50.4%)	91.0% 95% CI (90.8%-91.2%)	<0.0001

Disclosures. **All authors:** No reported disclosures.

572. Relationship Between Chlorhexidine Gluconate (CHG) Skin Concentrations and Microbial Skin Colonization among Medical Intensive Care Unit (MICU) Patients

Yoona Rhee, MD, ScM[1]; Mary K. Hayden, MD[2]; Andrew T. Simms, MD, MSCR[1]; Rachel D. Yelin, MPH[1]; Karen Lolans, BS[1]; Pamela B. Bell, II, BA[1]; Michael Schoeny, PhD[3]; Arthur W. Baker, MD, MPH[4]; Meghan A. Baker, MD, ScD[5]; Shruti K. Gohil, MD MPH[6]; Chanu Rhee, MD, MPH[7]; Naasha J. Talati, MD, MSCR[8]; David K. Warren, MD MPH[9]; Sharon F. Welbel, MD[10]; Thelma E. Dangana, MBBS[1]; Thelma Majalca, MBA/MRes[3]; Heilen Bravo, MD[1]; Candice Cass, Associate in Arts[9]; Alicia Nelson, MPH[11]; Pam C. Tolomeo, MPH, CCRP[12]; Robert Wolf, BTS[13] and Michael Y. Lin, MD, MPH[1]; [1]Rush University Medical Center, Chicago, Illinois; [2]Rush University Medical Center, Chicago, Illinois; [3]Rush University, Chicago, Illinois; [4]Duke University School of Medicine; Duke Center for Antimicrobial Stewardship and Infection Prevention, Durham, North Carolina; [5]Brigham and Women's Hospital, Boston, Massachusetts; [6]University of California, Irvine School of Medicine, Irvine, California; [7]Harvard Medical School / Harvard Pilgrim Health Care Institute, Boston, Massachusetts; [8]Penn Presbyterian Medical Center, Broomall, Pennsylvania; [9]Washington University School of Medicine, St. Louis, Missouri, [10]Rush Presbyterian Hosptial, Skokie, Illinois, [11]Duke University Medical Center, Durham, North Carolina, [12]University of Pennsylvania, Philadelphia, Pennsylvania, [13]Harvard Pilgrim Healthcare and Harvard Medical School, Brigham and Women's Hospital, Brighton, Massachusetts

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Background. CHG bathing is used to suppress patients' microbial skin colonization, in order to prevent infections and transmission of multidrug-resistant organisms. Prior work has suggested that microbial growth is inhibited when CHG skin concentrations exceed threshold levels.

Methods. We conducted 6 single-day surveys from January 2018 to February 2019 in 7 academic hospital MICUs with established CHG patient bathing. Adult patients were eligible to have skin swabbed from adjacent 25 cm2 areas on the neck, axilla, and inguinal region for culture and CHG concentration determination. CHG skin concentrations were measured by a semi-quantitative colorimetric assay. Selective media were used to isolate targeted microorganisms (Table 1). Species were confirmed by matrix-assisted laser desorption ionization time-of-flight mass spectrometry; antibiotic susceptibility was determined by MicroScan (Beckman Coulter). We modeled the relationship between CHG skin concentrations (log2-transformed) and microorganism recovery (yes/no as primary outcome) using multilevel models controlling for clustering of body sites within patients and within ICUs, assessing slope and threshold effects.

Results. We enrolled 736/759 (97%) patients and sampled 2176 skin sites. Gram-positive bacteria were detected most frequently (Table 1). The adjusted odds of identifying gram-positive organisms decreased linearly as CHG skin levels increased (Figure 1a), without evidence of a threshold effect. We also found significant negative linear slopes without evidence of threshold effects for other pathogens tested (Table 2; Figure 1), with the exception of gram-negative bacteria and vancomycin-resistant enterococci. When modeling quantitative culture results (colony-forming units) for gram-positive organisms as a continuous outcome variable, a similar relationship was found.

Conclusion. Higher concentrations of CHG were associated with less frequent recovery of gram-positive bacteria and Candida species on the skin of MICU patients who were bathed routinely with CHG. For microbial inhibition, we did not identify a threshold concentration of CHG on the skin; rather, increasing CHG skin concentrations led to additional gains in inhibition. For infection prevention, aiming for high CHG skin levels may be beneficial.

Table 1: Prevalence of Microorganisms Recovered by Culture from Skin of Medical Intensive Care Unit Patients at 7 Hospitals

Organism	Neck	Axilla	Inguinal	Total
Gram-Positive Bacteria	612/729 (84)	461/728 (63)	456/709 (64)	1529/2166 (71)
Staphylococcus aureus	64/732 (9)	24/730 (3)	32/714 (5)	12/2176 (6)
Methicillin-resistant *S. aureus*	21/730 (3)	8/727 (1)	12/709 (2)	41/2166 (2)
Enterococcus species	63/732 (9)	38/730 (5)	118/714 (17)	219/2176 (10)
Vancomycin-resistant enterococci	26/729 (4)	16/727 (2)	50/708 (7)	92/2164 (4)
Gram-Negative Bacteria	63/731 (9)	47/729 (7)	93/713 (13)	203/2173 (9)
Candida species	77/721 (11)	62/722 (34)	118/704 (17)	257/2147 (12)
Candida auris	0/721 (0)	2/722 (0.3)	0/704 (0)	2/2147 (0.1)

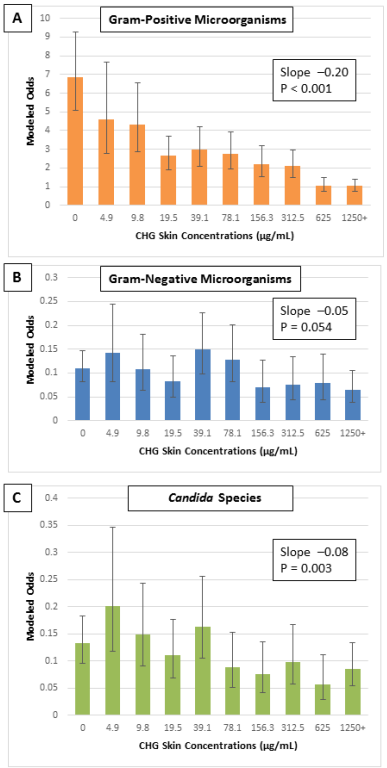
Note. Cells represent n/N (%) = number of positive skin sites / number of skin sites sampled for target microorganism. Total represents all three body sites combined.

Table 2: Linear Effects of Chlorhexidine Gluconate Skin Concentration on Microbial Recovery by Culture from Skin

Organism	Change in odds/log2 CHG unit	*P* value
Gram-Positive Bacteria	-0.20	<0.001
Staphylococcus aureus	-0.18	<0.001
Methicillin-resistant *S. aureus*	-0.19	0.003
Enterococcus species	-0.07	0.003
Vancomycin-resistant enterococci	-0.06	0.12
Gram-Negative Bacteria	-0.05	0.054
Candida species	-0.08	0.003

Note. Slope represents change in microorganism recovery by culture from patient skin for every unit increase in log2-CHG skin concentration (i.e., for each doubling of CHG skin concentration).

Figure 1. Relationship Between Chlorhexidine Gluconate (CHG) Skin Concentrations and Modeled Odds of Microorganism Culture Detection Among Medical Intensive Care Unit Patients



Note. Odds of microorganism culture detection on the skin at each CHG skin concentration were estimated using mixed effects models that controlled for body site clustered within patients and within ICUs. Bars represent 95% confidence intervals. Slope represents change in odds of microorganism recovery for every unit increase in CHG skin concentration.

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573. Enterococcal Bacteremia in a Tertiary Care Center in Mexico: A Retrospective Analysis Focus on Vancomycin-Resistant *E. faecium* and Ampicillin-Resistant *E. faecalis*

Bruno A. Lopez Luis, MD[1]; Darwin Lambraño-Castillo, MD[2]; Edgar Ortiz-Brizuela, MD[1]; Andrea Ramirez-Fontes, MD[3];