unit or multıbedded room. Decolonization was extended to all S. aureus-colonized patients beginning in June 2018, with involvement of a dedicated clinical nurse specialist. We compared compliance with screening and decolonization and the secondary outcome of MRSA bacteremia in the 6 month period before and after the addition of the clinical nurse specialist.

Results. 21.5% of screened patients were colonized with S. aureus (82.4% MSSA, 17.6% MRSA). Screening compliance improved from 39.4% of eligible patients (N = 1805) to 52.1% (N = 2024) and decolonization increased from 18.6% of colonized patients to 41.2% comparing January-June 2018 with July-December 2018. The MRSA bacteremia rate fell from 0.2/1,000 patient-days in the first half of 2018 to 0.1/1,000 patient-days in the second half of 2018.

Conclusion. A system-wide program that includes S. aureus screening and decolonization of hospitalized patients found that 21% of patients had S. aureus colonization. Screening and decolonization compliance increased with the introduction of a dedicated clinical nurse specialist, and the MRSA bloodstream infection rate fell.

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566. Reduction of Hospital-Onset Methicillin-Resistant Staphylococcus aureus (MRSA) Bacteremia in an Acute Care Hospital: Impact of Bundles and Universal Decolonization
Adriana Jimenez, MPH, MLS(ASC), CIT1; Kathleen Sposato, RN MSN CIT2; Alicia de Leon-Sanchez, RN, MSN, MBA3; Regina Williams, BSN1; Reynande Francois, RN, BSN,MSN1; Juliana Wilson, RN, BSN, MSN1; Benjamin Lisondra, RN, BSN, BSA, MBA, MSN1,2; and Lilian Abbo, MD, FIDSA3
1Jackson Health System, Infection Prevention and Control Department, Miami, Florida; 2Broward Health Medical Center, Ft. Lauderdale, Florida; 3Jackson North Medical Center, Miami, Florida; 4University of Miami Miller School of Medicine, Miami, Florida
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Background. MRSA is a major concern for hospitalized patients in the United States. Hospital-Onset (HO) MRSA bacteremia is used as a proxy measurement of MRSA healthcare acquisition, exposure, and infection burden. HO MRSA bacteremia standardized infection ratio (SIR) is used by several national agencies as a quality report metric. Our institution had more than expected HO MRSA bacteremia cases despite several interventions. We describe the impact of a bundle of interventions aimed to decrease HO MRSA bacteremia in an acute care facility.

Methods. This quality improvement project was implemented in a 380-bed community hospital in Miami, FL from January 2015 to March 2019. HO MRSA bacteremia was defined as non-duplicate MRSA isolated from a blood culture collected >3 days after admission. SIR was calculated dividing the number of observed events by the number of predicted events; predicted events were obtained from the NHSN report. During baseline period (Figure 1 Phase 1 January 2015–August 2016) all adult patients in the intensive care unit (ICU) were screened for MRSA nasal colonization on admission and weekly thereafter. ICU patients received daily Chlorhexidine (CHG) bathing, and colonized/infected patients with MRSA were placed in contact precautions. In Phase 2 (September 2016–June 2017) daily CHG bathing was switched from 2% wipes to 4% soap foam and expanded to all adult patients; ICU patients also received nasal decolonization with mupirocin. Nasal mupirocin in ICU was replaced with alcohol-based nasal sanitizer for all adult units in July 2017 (Phase 3). In April 2017 we discontinued using contact precautions for MRSA patients; nasal surveillance cultures were discontinued in October 2017. In May 2018 (Phase 4) we introduced alcohol-based wipes for patient hand hygiene at the bedside. SIR were compared by exact binomial test.

Results. We observed 48 HO MRSA bacteremia cases during the study period. The SIR decreased from 2.64 to 0.97 from baseline to postintervention period (P = 0.003). The largest decrease in cases and SIR was attained using combined hospital-wide daily CHG bathing, alcohol-based nasal sanitizer, and alcohol wipes for patient hand hygiene during Phase 4 (Table 1).

Conclusion. Our bundle of interventions for universal decolonization was successful in decreasing HO MRSA bacteremia.

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567. Does Universal Nasal Decolonization with an Alcohol-Based Nasal Antiseptic Reduce Infection Risk and Cost?
Sally Kaltenen, RN, BSN; AdventHealth North; Pinellas, Tarpon Springs, Florida
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Background. Nasal decolonization with mupirocin to reduce infection risk, has been associated with mupirocin-resistant Staphylococcus aureus (SA). A community hospital identified two patients colonized with methicillin and mupirocin-resistant SA (MRSa), one scheduled for surgery, one for inpatient IV antibiotic therapy. Instead of mupirocin, an alcohol-based nasal antiseptic was applied to these patients twice daily for 5 days, resulting in a negative MRSa nasal screening test in both patients. Neither patient developed an infection during or after treatment. Building on this success, a plan was made to assess the impact of universal nasal decolonization to replace screening and contact precautions for MRSa colonized patients, and to reduce surgical site infections (SSI). A 12-month project using a before and after design, was initiated in April 2018. The project involved twice daily application of alcohol-based nasal antiseptic for all inpatients, and preoperatively for all surgical patients in addition to existing hospital wide chlorhexidine (CHG) hand hygiene. No other practice change was made during this period. Assessment of impact was planned by comparing the incidence of MRSA bacteremia and SSI at baseline (2017) and after project implementation, in addition to costs avoided with reduction of nasal screening and CP.

Results. Compared with baseline, in April 2018 and March 2019, there was a decrease in MRSA bacteremia from 3/1,000 patient-days to 0/1,000 patient-days, a reduction in CP from 3.78 to 1.53/1,000 patient-days, a reduction in nasal screens from 3,874 to 605, and a reduction of all-cause (Gram-negative and Gram-positive) SSI from 4.3/1,000 surgical procedures to 0.4/872 procedures. Accounting for the cost of the nasal antiseptic, the reduction in gowns, gloves and nasal screening tests resulted in $104,099.91 costs avoided.

Conclusion. House-wide application of alcohol-based nasal antiseptic in place of screening and contact precautions, resulted in a reduced incidence of both MRSa bacteremia and SSI for all types of surgical procedures, in addition to significant costs avoided.

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568. A Randomized, Double-Blinded, Placebo-Controlled Trial of Retapamulin for Nasal and Rectal Decolonization of Mupirocin-Resistant Methicillin-Resistant Staphylococcus aureus Among Children
Ami Patel, MD, MPH; Bo Shopsin, MD, PhD; Anna Stachel, MPH and Jennifer Lighter, MD, NYU Langone Health, New York, New York
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Background. Colonization with Staphylococcus aureus, particularly MRSA, is a crucial risk factor for subsequent infection. Decolonization measures are often undertaken to prevent recurrent MRSA infection and transmission; however, increasing rates of resistance to the gold standard mupirocin has been noted globally. At our institution, there is >85% high-level resistance to mupirocin among strains from a geographically defined genotypic cluster of CA-MRSA in children from Orthodox communities in Brooklyn. Retapamulin is a topical bacteriostatic pleuromutilin antibiotic that has demonstrated excellent in vitro activity against mupirocin-resistant isolates from pediatrics patients with MRSA infection presenting to our institution suggesting that it may be a promising alternative decolonization therapy. We sought to determine the efficacy of retapamulin as a topical decolonizing agent against mupirocin-resistant MRSA among the identified high-risk Brooklyn cluster via a randomized, placebo-controlled, double-blinded phase three trial.

Methods. Children aged 9 months-17 years who resided in high-risk zip codes used as a proxy for Orthodox Jewish predominant neighborhoods were recruited exclusively from outpatient units at NYU Langone or at a partner community clinic. Participants were screened via nasal and rectal culture to detect MRSA colonization. Enrolled participants were randomized to receive either retapamulin or placebo and instructed to apply the ointment nasally and rectally twice a day for 5 days. Repeat nasal and rectal cultures were collected one week and one month after completion of topical therapy to assess MRSA colonization status. The change in colonization rates was assessed via Fisher’s exact test.

Results. 173 participants were screened from December 2017 to March 2019 in which 168 were ultimately randomized: 23 (2 in the retapamulin group and 24 in the placebo group). The median age was 3.9 years (SD 3.5 years). Children in the placebo group were 15.2 times more likely to be colonized with MRSA after one week of the decolonization protocol compared with the retapamulin group (OR 15.2, CI...
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 statistically significant reduction in nasal MRSA in comparison to controls at 2 and 6 hours after treatment (P10 colonies per swab).

Conclusions. The findings suggest that single preoperative applications of 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

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

Bhagyashri D. Navaleke, MD, FACP; Sheila Fletcher, BSN, RN, CIC; Nora Truett, 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 current 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 October 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. 1.21/10,000 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 institution, 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.

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