Background. Controlling methicillin-resistant Staphylococcus aureus (MRSA) coloniza-
tion is a common strategy to prevent transmission and recurrent infection. Standard de-
colonization regimens include nasal application of mupirocin eitement; however, increasing
rates of mupirocin-resistance (Mup-R) have been noted globally. At our insti-
tution there has been an increase in community-acquired MRSA (CA-MRSA) infections
among pediatric patients living in Brooklyn, New York. A genotype geographic cluster of a
break clone of the CA-MRSA strain USA 300 with a high rate (85%) of mupirocin resist-
ance, mediated by the plasmid borne mupA gene, was identified prompting investigation
into an alternative decolonizing agent. We sought to investigate retapamulin, a topical
pleuromutilin antibiotic, which has been shown to be effective against S. aureus with in
vitro and in vivo activity against MRSA and a low propensity to develop resistance.

Methods. Broth microdilution was used to determine the minimum inhibitory
concentrations (MIC) of retapamulin against 53 Mup-R MRSA isolates collected from
pediatric patients (aged 3 months–17 years) presenting to our institution over an
18 month period with clinical MRSA infection. Susceptibility defined as ≤0.5 mg/L
susceptible (EUCAST). Whole genome sequence data were analyzed for the presence
of rplC and cfr gene mutations known to confer resistance to retapamulin.

Results. All 53 isolates were susceptible to retapamulin. 48/53 (92%) strains were
inhibited at MIC 0.25 μg/mL, 2/53 (4%) at MIC 0.125 μg/mL and 2/53 (4%) at MIC 0.5 μg/mL. DNA sequence analysis showed that one isolate had a first-step mutation in the
rplC gene, but it was not associated with reduced phenotypic susceptibility to retapamulin, as the MIC of that isolate was 0.25 μg/mL.

Conclusion. Retapamulin demonstrated excellent in vitro activity against a geno-
typic cluster of Mup-R isolates from pediatric patients presenting to our institution
with MRSA infection. These data suggest that retapamulin may be a promising alter-
native decolonization therapy for MRSA and a viable option to prevent the spread of
mupirocin-resistant MRSA clones. Further research includes an ongoing randomized,
placebo-controlled trial testing the in vivo efficacy of retapamulin as a nasal and peri-
rectal decolonizing agent in children.

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1219. Increasing Methicillin Resistance of Staphylococcus lugdunensis in a Tertiary Care Community Hospital in Japan
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Background. Staphylococcus lugdunensis, a coagulase-negative staphylococcus, has
drug susceptibility similar to that of Staphylococcus aureus. Methicillin resistance and presence of mecA gene are not common in S. lugdunensis in many parts of the world. Recently, higher prevalence of methicillin-resistant S. lugdunensis is reported from Taiwan and Japan. We describe the change in methicillin resistance of S. lugdunensis in a tertiary care community hospital in Sapporo, Japan.

Methods. We performed a retrospective study of S. lugdunensis, isolated from inpatients and outpatients at our hospital from 2008 to 2017. Rate of methicillin resistance of this first 5 years from 2008 to 2012, and that of the second 5 years from 2013 to 2017 were compared. Risk factors of methicillin resistance were also evaluated. Phenotypic methicillin resistance and mecA gene was identified using broth microdilution by VITEK two system (bioMérieux).

Results. A total of 369 cases of S. lugdunensis were detected during the study period. Of all cases, 228 (61.8%) were men, and 177 (48.0%) were hospitalized. Twenty-one isolates (5.7%) were positive in blood culture, 216 (58.5%) were positive in at least one inpatient or outpatient culture.

Conclusion. In our hospital, methicillin-resistant S. lugdunensis is increasing over the 10 years. Further research is needed to assess trend of methicillin resistance of S. lugdunensis in other healthcare facilities and countries.

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1220. Impact of Mandatory Infectious Diseases Consultation on the Use of Core Measures and Mortality in Staphylococcus aureus Bacteremia (SAB) at an Academic Medical Center
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Background. Multiple studies have shown that Infectious Diseases (ID) con-
sultation can improve clinical outcomes, improve adherence to guideline-based core measures for SAB management. Based on these data, a mandatory ID consultation was established at our institution in November 2016.

Methods. A retrospective, observational study was conducted to evaluate patient characteristics, adherence to core measures for SAB, and in hospital mortality. All patients with at least one documented blood culture positive for S. aureus were strati-
fied into two groups: pre-mandatory consult (January 1, 2014–November 1, 2016) and post mandatory consult [November 2, 2016–February 1, 2018].

Results. Three hundred seventy-three discrete episodes of SAB were included in the final analysis, 238 episodes before mandatory consult, and 135 episodes after the mandatory consult policy was enacted. Mandatory consultation significantly improved the use of the following core measures for SAB: surveillance blood cultures (87.7% pre vs. 94.5% post, P = 0.009), early targeted antimicrobial therapy with nafcillin or cefazolin in MSSA (71.7% vs. 88.6%, P = 0.001), and appropriateness of final antibiotic choice (80.2% vs. 95.2%, P < 0.001). In addition, in-hospital mortality (15.4% vs. 6.2%, P = 0.011), and infection-related mortality (15.4% vs. 5.6%, P = 0.001) were found to be statistically significantly lower in the post mandatory consultation patients.

Conclusion. Implementation of a mandatory ID consultation for patients with SAB at our institution was associated with increased adherence to guideline-based core measures for management of SAB, and decreased in-hospital and infection-re-
lated mortality. Our results suggest that mandatory ID consultation for SAB should be considered at all institutions.

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Background. Daptomycin (dap) has been approved and successfully used for the treatment of methicillin-resistant Staphylococcus aureus (MRSA) infections. However, reports of daptomycin nonsusceptible (DNS) MRSA strains have emerged over the recent years. This study describes the clinical characteristics of patients with DNS MRSA bloodstream infections (BSIs) with the objective of identifying risk factors and outcomes.

Methods. This retrospective case control study in a tertiary healthcare system in southeast Michigan. Cases includes 34 patients with DNS MRSA BSI between September 24, 2005 and March 31, 2018. Cases were matched with controls with MRSA BSI based on age, source of BSI, and time period of BSI in a 1:1 ratio. Charts were reviewed for clinical and laboratory data. Vancomycin (van) and dap minimum inhibitory concentrations (MICs) were determined by E-test. DNS was defined as an MIC <0.5 µg/mL. Chi-square test, Fisher's exact test, and t-test were used to determine statistical significance.

Results. In the case cohort, the source of BSI was endovascular in 11(32%) patients, central-line associated in 19(56%), and unknown in 7(21%). Table 1 is a summary of the results.

Table 1. Clinical Characteristics and Outcomes of Cases and Controls

|                           | Cases              | Controls             | N = 34(%) | N = 34(%) | P-value |
|---------------------------|--------------------|----------------------|-----------|-----------|---------|
| Mean age (SD)             | 63.5 (12.0)        | 61.9 (11.2)          | 0.572     |
| Male                      | 19 (58.8)          | 21 (61.8)            | 0.462     |
| Mean bacteraemia duration in days (SD) | 4.4 (5.2)           | 5.9 (4.9)            | 0.198     |
| Mean LOS in days (SD)     | 19.5 (13.6)        | 18.4 (14.6)          | 0.751     |
| Mean van MIC (SD)         | 2.04 (1.19)        | 1.39 (0.36)          | 0.003     |
| Mean dap MIC (SD)         | 2.69 (1.32)        | 0.57 (0.24)          | <0.0001   |
| Epidemiologic acquisition  |                    |                      |           |
| Community-acquired        | 0 (0)              | 9 (26.5)             | 0.002     |
| Healthcare-associated     | 21 (63.6)          | 22 (64.7)            | 0.927     |
| Household                 | 12 (36.4)          | 3 (9.7)              | 0.032     |
| 90-day prior dap exposure  | 23 (68.2)          | 3 (9.7)              | 0.0001    |
| Mean dap exposure in days  | 23.6 (21.0)        | 2.68 (10.6)          | <0.0001   |
| 90-day prior van exposure  | 25 (88.9)          | 9 (29)               | <0.0001   |
| Mean van exposure in days  | 13.0 (14.7)        | 4.19 (12.2)          | <0.0001   |
| 30-day mortality*         | 10 (30.3)          | 6 (18.8)             | 0.218     |
| Mean Charlson Comorbidity Index (SD) | 5.7 (3.07)          | 4.4 (2.9)            | 0.077     |
| 90-day MRSA BSI recurrence| 8 (44.4)           | 2 (5.5)              | 0.025     |

*From date of index BSI.

Conclusion. Prior exposure to van and dap, and higher van MIC in MRSA isolates are risk factors for DNS MRSA BSI. DNS is associated with significantly higher risk of 90-day MRSA BSI recurrence.

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1223. Increasing Incidence of Methicillin-Resistant Staphylococcus aureus in Greenland

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Background. The increasing number of patients with MRSA in Greenland can be explained by factors such as import from Denmark or abroad due to admission to hospital or traveling, and transmission in Greenland. An ongoing surveillance, compliance to screening procedures (especially patients admitted to hospitals abroad) and guidelines for infection prevention and control are necessary in order to combat MRSA in Greenland in the future.

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1224. Drug Resistance Dynamics of Staphylococcus aureus at a Tertiary Hospital, Beijing, China: 2013–2017

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Background. To understand the drug resistance dynamics of Staphylococcus aureus and provide references for effective control of methicillin-resistant Staphylococcus aureus (MRSA) infection.

Methods. All data were obtained from the healthcare-associated infection surveillance system. Different strains of S. aureus were identified using the VITEK-2 automated system, the drug susceptibility results of resistance and intermediate were classified into resistance. Chi-square test and variation analyses of S. aureus drug resistance were performed.

Results. From 2013 to 2017, 2,289 strains of S. aureus were isolated, and the specimens were mostly collected from sputum (721, 31.5%), wound secretion (211, 9.2%), and blood (210, 9.7%). The resistance rate of S. aureus was highest for tigecycline (94.30% in 2013, and 96.49% in 2017) and vancomycin (96.49% in 2013, 95.69% in 2017) (P < 0.002). The resistance rates among other drugs such as clindamycin (65.28% in 2013, 71.39% in 2017) and erythromycin (69.62% in 2013, 62.59% in 2017) were more stable (P > 0.056). However, oxacillin (from 73.68% to 34.47%), gentamicin (from 51.51% to 21.13%), and tetracycline (from 46.78% to 30.81%) showed a declining trend (P < 0.001). Meanwhile, there were almost no S. aureus resistance to linezolact, vancomycin, and nitrofurantoin. During the previous 5-year period, MRSA rates decreased sharply and in 2017 rate was 34.47%. In 2017, MRSA was most frequently isolated in orthopaedics, emergency ICU, and respiratory units.

Conclusion. The reduction in drug-resistant MRSA may be evidence of effective antibiotic administration practice. Whereas more comprehensive infection control measures are needed to prevent the transmission of S. aureus and MRSA.

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1225. High Rate of Linezolid (LZD) Nonsusceptibility (LNS) Among Enteric Vancomycin-Resistant Enterococci (VRE) Recovered From Hospitalized Patients Actively Screened for VRE Rectal Colonization (VREC)

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Background. Select hospitalized patients are actively screened for VREC but VRE isolates may not undergo antibiotic susceptibility testing. We sought to identify predictors of daptomycin (DAP) nonsusceptibility (DNS, MIC > 4) and LNS (MIC > 2) among enteric VRE isolates recovered from patients actively screened for VREC for which antibiotic susceptibility testing was not preformed.

Methods. This was a retrospective study of consecutive adults admitted to a surgical intensive care unit (ICU) or associated medical unit between June 1, 2017 and March 1, 2018 who had a VRE isolate from active screening. Only index isolates were included. DAP and LZD MICs were determined by Etest. Patient- and antimicrobiological-level data, including antibiotic prescriptions, dating back to January 1, 2016 were collected. Multivariable logistic regression models were used to determine predictors of DNS and LNS VRE.

Results. In total, 64 patients’ VRE rectal isolates were included. Fifty-nine (92.2%) were female and the mean age ± SD was 60 ± 13 years. Five (7.8%) and 20 (31.3%) patients had previous abdominal transplant and VRE infection, respectively. DAP and LZD MIC distributions are shown in the table below. Forty-one (64.1%) VRE isolates were DNS, including five LNS-resistant isolates. Only one (1.6%) isolate was DNS precluding an analysis of DNS predictors; 12 (18.8%) isolates had a DAP MIC > 2 mg/L. Common antimicrobial exposures prior to index VRE isolate included: vancomycin (62.5%), ceftriaxone (64.1%), cephalosporin (53.1%), metronidazole (50%), and ciprofloxacin (50%). Previous LZD MICs were lower than LNS MICs, and exposure was less common. In a multivariable model, number of previous cefazolin doses (adjusted odds ratio (aOR) 0.74 95% confidence interval (CI) 0.55–0.95), and previous tobramycin exposure (aOR 0.15, 95% CI 0.02–0.81) were inversely associated with LNS. Previous LZD exposure was not associated with LNS.