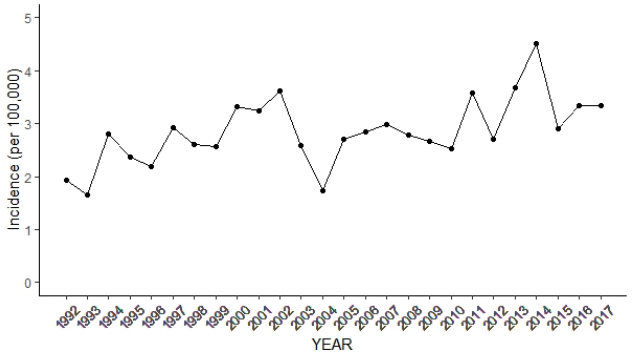
syndrome were met in 17.6% (497/2,819). Overall case fatality within 30 days of hospitalization was 15.3% (95% confidence interval 14.0 to 16.6) and did not change over time. M serotype distribution varied yearly with the most common type being M1 at 22.2% (626/2,189) followed by M12 at 8.2% (230/2,189), then M89 at 5.8% (163/2,189). Antibiotic susceptibility was available from 1998 onwards with overall clindamycin susceptibility at 92.3% (1,957/2,121) and erythromycin susceptibility at 87.9% (1864/2,121).

Conclusion. The incidence of iGAS in Toronto, Ontario has varied over time, with no recent increase apparent. Similar to worldwide observations, M1 serotype was the most commonly isolated; most common serotypes demonstrated cyclical variation. Case fatality rates have remained relatively constant making the development of a vaccine imperative.



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

463. Evaluation of Trimethoprim-Sulfamethoxazole Utilization for Skin and Soft-Tissue Infections During Emergency Department Visits at Two Community Teaching Hospitals

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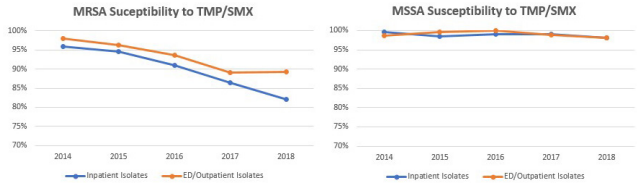
Background. Increasing trimethoprim/sulfamethoxazole (TMP/SMX) resistance has been noted among inpatient and outpatient isolates of methicillin-resistant *S. aureus* (MRSA) at two community teaching hospitals in Northern New Jersey. The purpose of the study is to evaluate the indications for TMP/SMX prescriptions for adult Emergency Department (ED) discharges. In addition, since IDSA guidelines for the management of skin and soft-tissue infections (SSTIs) do not recommend the use of anti-MRSA antibiotics for non-purulent SSTIs, we chose to determine guideline concordance of antibiotic selection for non-purulent SSTIs.

Methods. TMP/SMX susceptibility data for *S. aureus* from 2014 to 2018 at two community teaching hospitals were compiled. A retrospective chart review was then conducted of all adult patients who were discharged from the ED with an antibiotic prescription from January to March 2019. Antibiotic indications were extracted based on ED diagnosis and review of the medical record. In patients treated for non-purulent cellulitis, antibiotic prescription information and antibiotic allergies were collected and assessed for guideline concordance. Guideline-concordance for non-purulent cellulitis was defined as treatment with B-lactams or clindamycin.

Results. TMP/SMX susceptibility against *S. aureus* is displayed in Figure 1. Of 338 patients discharged with a prescription for TMP/SMX, 60% were treated for SSTIs, 30% were treated for urinary tract infections, and 10% were treated for other indications. Among 203 patients treated with a TMP/SMX-containing regimen for SSTIs, 76% had purulent or wound-related infection. Of 137 patients treated for non-purulent cellulitis, 68% of antibiotic regimens were guideline-concordant. In addition, 19% of antibiotic regimens for non-purulent cellulitis contained TMP/SMX.

Conclusion. A substantial reduction in TMP/SMX susceptibility among MRSA, but not MSSA, isolates has been observed. Opportunities to improve utilization of TMP/SMX for SSTIs exist at our institutions. Additional studies are warranted to determine the factors associated with increasing TMP/SMX resistance in MRSA.



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

464. Fecal *Staphylococcus aureus* in the Neonatal Intensive Care Unit

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Session: 51. Soft Tissue and Skin Infections
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Background. *Staphylococcus aureus* colonization in infants in the neonatal intensive care unit (NICU) often leads to repeated infections and severe disease. Methicillin-resistant *S. aureus* (MRSA) and methicillin-sensitive *S. aureus* (MSSA) infections are major causes of NICU outbreaks. Current national practice in NICUs utilizes nare swab surveillance for *S. aureus*. We hypothesize that infants colonized in the stool with *S. aureus* may go unrecognized particularly when nare swab negative, allowing for a transmission reservoir. While it is unclear why some *S. aureus* nare carriers are also stool colonized, isolates tend to have clonality. A true prevalence of *S. aureus* fecal carriage is not well understood and variable.

Methods. Available stool samples were prospectively collected from 42 of 55 infants admitted in a level IV NICU on a single day, per Cincinnati Children's institutional review board approval. Nare swab results were obtained from electronic medical records. DNA was isolated from stool and shotgun metagenomic sequencing was performed via Hiseq Illuminex 2500. The presence of *S. aureus* and MRSA were defined as having >100 sequencing reads and a mecA DNA read fraction ratio >40 per stool sample, respectively.

Results. Of the 42 stool samples sequenced, 33 were *S. aureus* (15 MSSA, 18 MRSA) positive. All infants with nare positive MSSA (n = 9) were colonized in the stool with a 93% and 100% sensitivity and specificity, respectively. While infants with nare positive MRSA (n = 10) were stool colonized with 100% and 83% sensitivity and specificity, respectively. Three nare positive infants with MRSA had S.a. in the stool but lacked the presence of mecA. When comparing clinical nare swabs to stool metagenomic surveillance, sensitivities were 60% for MSSA and 56% for MRSA.

Conclusion. Infant colonization of *S. aureus* in the NICU remains a major problem despite current national surveillance and isolation practices. We found that nare swab surveillance for *S. aureus* in infants significantly underestimated colonization rates when compared with shotgun metagenomics of stool. These results suggest that nare swabs alone may not have adequate sensitivity and the implementation of stool surveillance should be considered to augment current practices. Future study is necessary to understand how the *S. aureus* stool reservoir contributes to transmission

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

465. Comparative Efficacy of Double vs. Single Antibiotic Regimens for the Empiric Treatment of MRSA-Induced Acute Bacterial Skin and Skin Structure Infection

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Background. The initial management of Acute bacterial skin and skin structure infection (ABSSSI) is burdensome. It requires empirical antibiotic therapy that covers both gram-positive and gram-negative bacteria. Vancomycin plus aztreonam are the most commonly used antibiotic combination, nonetheless, they have many limitations which limits their use. Hence, many new single agents with MRSA and gram-negative coverage, oral options, and/or good safety profile have been developed to be a potential alternative such as: ceftaroline, ceftobiprole, tigecycline and the recent FDA approved antibiotic (delafloxacin). In the absence of head-to-head trials comparing these agents, we decided to conduct a network meta-analysis for these therapeutic regimens.

Methods. A Bayesian network meta-analysis of randomized clinical trials identified in PubMed/Medline and Embase databases was conducted. We performed both fixed and random effect models for clinical cure as the primary outcome of interest. Additionally, rankograms were generated using the surface under the cumulative ranking curve (SUCRA) to obtain the treatment ranking probabilities in relation to their relative effect.

Results. We identified 10 eligible studies involving 4,914 patients. The indirect comparison demonstrated that delafloxacin showed no difference in terms of clinical cure compared with ceftaroline (OR, 0.82, 95% Cr.I 0.39–1.8), ceftobiprole (OR, 0.79, 95% Cr.I 0.32–1.9), SOC (OR, 1.2, 95% Cr.I 0.62–2.4) and tigecycline (OR, 1.0, 95% Cr.I 0.45–2.2) in the fixed effect analysis, nor in the random-effect analysis (OR, 0.8, 95% Cr.I 0.26–2.2; OR, 0.78, 95% Cr.I 0.2–3.0; OR, 1.2, 95% Cr.I 0.51–3.1; and OR, 0.96, 95% Cr.I 0.30–3.0), respectively. Furthermore, the ranking probabilities in the fixed-effect and random-effect analysis showed that ceftaroline was ranked the first in terms of clinical cure (SUCRA, 40.02%) followed by ceftobiprole (SUCRA, 22.80%), delafloxacin (SUCRA, 16.60%), SOC (SUCRA, 13.80%), and then tigecycline (SUCRA, 6.70%).

Conclusion. Ceftaroline, ceftbiprole, delafoxacin, SOC and tigecycline are similarly effective. However, delafloxacin provides better convenience. Further comparative studies regarding their safety are needed.

Table:1 Comparison of the included interventions: odds ratio (95% CrI). Each cell gives the effect of the column-defining intervention relative to the row-defining intervention using the fixed-effect model.

Ceftaroline	1.046 (0.567, 1.893)	0.823 (0.387, 1.757)	1.007 (0.741, 1.378)	0.822 (0.490, 1.389)
	Ceftobiprole	0.787 (0.333, 1.884)	0.959 (0.576, 1.638)	0.786 (0.404, 1.543)
		Delafloxacin	1.220 (0.620, 2.415)	0.999 (0.453, 2.223)
			SOC	0.817 (0.538, 1.241)
				Tigecycline

Table:2 Comparison of the included interventions: odds ratio (95% CrI). Each cell gives the effect of the column-defining intervention relative to the row-defining intervention using random-effect model.

1.026 (0.312, 2.904)	0.800 (0.261, 2.193)	0.984 (0.517, 1.647)	0.778 (0.278, 1.811)
Ceftobiprole	0.782 (0.212, 2.976)	0.952 (0.366, 2.612)	0.756 (0.215, 2.465)
	Delafloxacin	1.226 (0.511, 3.054)	0.964 (0.304, 3.044)
		SOC	0.795 (0.372, 1.605)
			Tigecycline

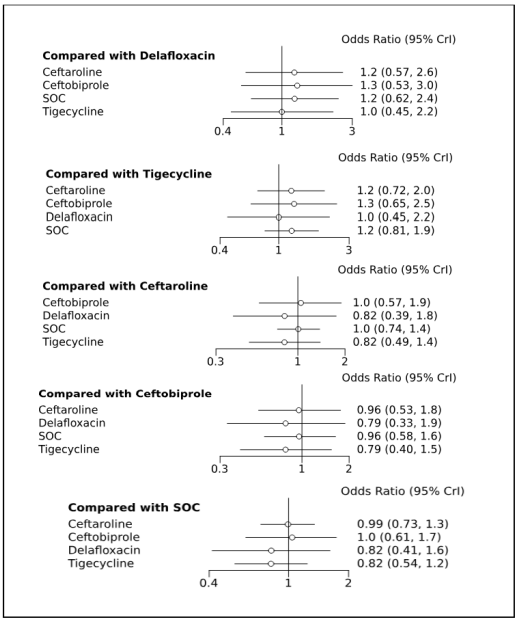

Fig 1. Forest plot display of odds ratio (OR) with 95% credible intervals (Cr.I.) of all interventions using fixed-effect model

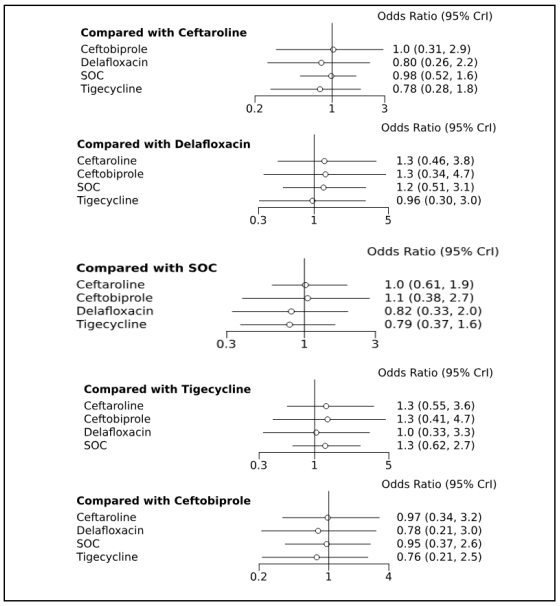

Fig:2 Forest plot display of odds ratio (OR) with 95% credible intervals (Cr.I.) of all interventions using random-effect model

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

466. Elevated Risk of Invasive Group B Streptococcal Infection Among Veterans with Poorly Controlled Diabetes Mellitus or at Extremes for Body Mass Index

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Session: 51. Soft Tissue and Skin Infections

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Background. Diabetes mellitus (DM) and obesity have been identified as risk factors for invasive Group B Streptococcal (GBS) infection in non-pregnant adults. We used data from the US Veterans Health Administration (VHA) to confirm these findings and determine if poor diabetic control (elevated hemoglobin A1C (HbA1c)) or extreme weight (body mass index (BMI)) impacted risk.

Methods. We examined the VHA Corporate Data Warehouse to identify veterans active in VHA between 2008 and 2017 with invasive GBS infection according to the US Centers for Disease Control and Prevention surveillance definitions. We used International Classification of Disease (ICD) codes to determine a diagnosis of DM and stratified veterans by the highest HbA1c and first BMI in a given year. Absent HbA1c among those with DM were recorded as such. For years without BMI, the most recent BMI was carried forward.

Results. Between 2008 and 2017, the rate of invasive GBS infection for veterans with HbA1C ≥9.5% ranged from 55 to 104 /100,000 person-years (Figure 1). Rates in the next-highest risk group (HbA1c 7.5%–9.4%) were 24 to 36/100,000 person-years. Veterans with a BMI ≥40 (extremely obese; n = 798) or ≤18.5 (underweight; n = 99) had similarly elevated rates of invasive GBS infection (26 to 37/100,000 and 15 to 33/100,000 person-years, respectively) while those with BMI of 18.5–40 ranged from 6 to 13/100,000 person-years (Figure 2). Among those with HbA1c ≥9.5%, the most common type of infection was osteomyelitis (500/1,182; 42%; Table 1). Pneumonia was most common among patients with a BMI, Table 2.

Conclusion. Our study confirms that DM and obesity are notable risk factors for invasive GBS infection among veterans. The risk is substantially increased in patients with poorly controlled DM and morbid obesity. The high rate of invasive GBS infections among the small proportion of underweight veterans may reflect long-standing type 1 DM or other chronic diseases. Effective interventions to reduce the burden of invasive GBS infection among veterans should target individuals with poorly controlled DM, morbid obesity and those markedly underweight.

Figure 1 Rates of invasive GBS infection by hemoglobin A1c in patients at the US VHA

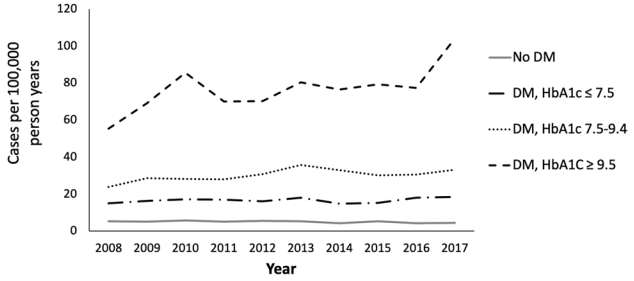

Figure 2 Rates of invasive Group B streptococcal infection by body mass index in patients at the US VHA

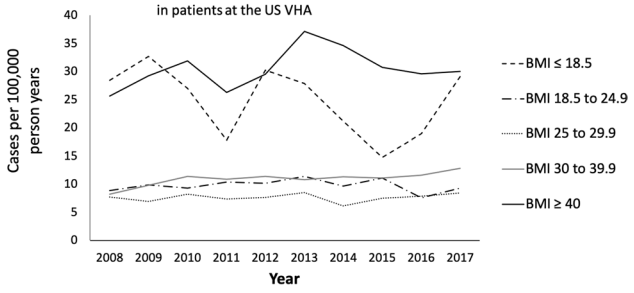

Table 1 Types of invasive Group B Streptococcus infections by hemoglobin A1C (HbA1c)

Infectious Syndromes	No Diabetes Mellitus (DM) N = 1685	DM, HbA1C ≤ 7.5% N = 1048	DM, HbA1C 7.5 – 9.4% N = 988	DM, HbA1C ≥ 9.5% N = 1182
Osteomyelitis	154 (9%)	203 (19%)	297 (30%)	500 (42%)
Bacteremia	444 (26%)	213 (20%)	169 (17%)	122 (10%)
Skin/Soft Tissue Infection	304 (18%)	218 (21%)	174 (18%)	195 (16%)
Pneumonia	294 (17%)	155 (15%)	132 (13%)	82 (7%)
Joint Infection	196 (12%)	105 (10%)	93 (9%)	121 (10%)
Endocarditis	175 (10%)	82 (8%)	82 (8%)	73 (6%)
Peritonitis	65 (4%)	39 (4%)	17 (2%)	12 (1%)
Necrotizing Fasciitis	17 (1%)	15 (1%)	17 (2%)	61 (5%)
Meningitis	36 (2%)	18 (2%)	7 (1%)	16 (1%)