Results. Overall, ORI inhibited 99.9% of all *S. aureus* isolates at the susceptible breakpoint (≤0.12 mg/L; 99.9% of MSSA and 100% of MRSA; Table). S rates were generally comparable between NA-MRSA and CA-MRSA isolates for ORI (100%S) and linezolid (LZD, 100%S) but lower susceptibility was observed for NA-MRSA compared to CA-MRSA for CLI (71.9%S vs. 79.1%S), LEV (31.0%S vs. 39.4%S), and trimethoprim-sulfamethoxazole (TMP-SMX; 91.1%S vs. 96.9%S). ORI was active against MRSA ($MIC_{50/90}$, 0.03/0.03 mg/L), regardless of infection status (NA, $MIC_{50/90}$, 0.03/0.06 mg/L; CA, $MIC_{50/90}$, 0.03/0.03 mg/L). ORI and LZD remained active (100%S) against all CA-MRSA subsets: CLI-R, LEV-R, MDR, and XDR. Limited activity of CLI (69.9%S) and LEV (13.1%S) was observed against MRSA and each R subset, whereas TMP-SMX had >90%S for all MSSA, MRSA, and R subsets, except XDR.

Conclusion. ORI exhibited potent *in vitro* activity against MRSA, regardless of the infection onset or R subset, in contrast to many comparators that lack activity against both, CA-MRSA and NA-MRSA. This *in vitro* activity, combined with the infusion time options provided to clinicians, suggests ORI is a favorable agent for treating SSSI in the US caused by MRSA, including MDR and XDR strains.

	Oritavancin			Clindamycin			Levofloxacin			Linezolid			TMP-SMX		
	MIC (mg/L)		%S[a]	MIC (mg/L)		%S[a]	MIC (mg/L)		%S[a]	MIC (mg/L)		%S[a]	MIC (mg/L)		%S[a]
Organism group (no. tested)	50%	90%		50%	90%		50%	90%		50%	90%		50%	90%	
MSSA (2,210)	0.03	0.03	99.9	0.06	0.06	95.8	0.25	1	90.3	1	2	100.0	≤0.5	≤0.5	99.3
MRSA (1,582)	0.03	0.03	100.0	0.06	>2	78.2	4	>4	38.4	1	2	100.0	≤0.5	≤0.5	96.1
NA-MRSA (203)	0.03	0.06	100.0	0.06	>2	71.9	4	>4	31.0	1	2	100.0	≤0.5	≤0.5	91.1
CA-MRSA (1,379)	0.03	0.03	100.0	0.06	>2	79.1	4	>4	39.4	1	2	100.0	≤0.5	≤0.5	96.9
CLI-R (283)	0.03	0.03	100.0	>2	>2	0.0	>4	>4	13.1	1	2	100.0	≤0.5	≤0.5	95.8
LEV-R (831)	0.03	0.03	100.0	0.06	>2	69.9	>4	>4	0.0	1	2	100.0	≤0.5	≤0.5	94.9
MDR (816)	0.03	0.03	100.0	0.06	>2	64.7	>4	>4	7.5	1	2	100.0	≤0.5	≤0.5	94.7
XDR (47)	0.03	0.06	100.0	>2	>2	6.4	>4	>4	0.0	1	2	100.0	≤0.5	16	66.0

[a]Using CLSI (2021) breakpoints

MSSA, methicillin susceptible *S. aureus*; MRSA, methicillin resistant *S. aureus*; NA, nosocomial acquired; CA, community acquired; CLI-R, clindamycin-resistant; LEV, levofloxacin-resistant; MDR, multi-drug resistant (NS to ≥3 classes of agents); XDR, extensively drug-resistant (NS to ≥5 classes of agents); TMP-SMX, trimethoprim-sulfamethoxazole.

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1370. Role of Clindamycin Versus Linezolid for Serious Group A Streptococcal Infections

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Session: P-76. Skin and Soft Tissue

Background. *Streptococcus pyogenes* can cause severe illnesses such as toxic-shock syndrome and necrotizing fasciitis due to pyrogenic exotoxins. Clindamycin is added to penicillin for treatment of severe *S. pyogenes* infections as it is a bacterial protein synthesis inhibitor which reduces toxin production. However, clindamycin is associated with several adverse effects including *C. difficile* infection. Linezolid is a bacterial protein synthesis inhibitor that has been shown to provide excellent coverage of *S. pyogenes* including toxin inhibition in vitro, but clinical evidence is lacking. We compared outcomes of patients treated with linezolid versus clindamycin for serious *S. pyogenes* infections.

Methods. This was a retrospective study of patients with necrotizing fasciitis or toxic shock syndrome caused by *S. pyogenes* admitted to the Shock Trauma Center at University of Maryland Medical Center treated with at least 48 hours of either clindamycin or linezolid. Data collected included Sequential Organ Failure Assessment (SOFA) and Laboratory Risk Indicator for Necrotizing Fasciitis (LRINEC) severity scores, time to resolution of infection, number of surgeries, *C. difficile* infection, other antibiotic associated adverse effects, and mortality. Associations between patient characteristics, antibiotic groups, and outcomes were analyzed using the chi-square test, Fisher's exact test and t-test or Wilcoxon rank-sum test as appropriate (SAS v 9.4).

Results. 52 patients were included, 26 treated with clindamycin and 26 with linezolid. Most patients (85% clindamycin and 96.2% linezolid) were treated for necrotizing fasciitis. Baseline characteristics, including SOFA and LRINEC scores, were similar between the groups. There was no difference in mortality between patients treated with clindamycin versus linezolid (11.5% vs. 7.7%, p = 0.22), and resolution of infection was similar between the groups (92.3% vs. 88.5%, p = 1.0). There was no difference in adverse effects between the clindamycin and linezolid groups, including *C. difficile* infection (3.9% vs. 0% p = 1.0) and thrombocytopenia (30.8% vs. 42.3%, p = 0.4).

Conclusion. Linezolid could be an alternate to clindamycin for the treatment of serious toxin producing *S. pyogenes* infections. Further prospective studies are needed.

Disclosures. **Emily Heil, PharmD, MS, BCIDP**, Nothing to disclose

1371. Identification of Risk Factors to Predict *Gram negative bacteria* in Patients with Upper Extremity Infections

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Session: P-76. Skin and Soft Tissue

Background. Gram negative bacteria (GNB) have been identified as a cause of upper extremity infections and empiric treatment directed to both gram positive and negative organisms is often recommended. Risk-based approaches to establish need for gram-negative coverage may help to minimize unnecessary drug exposure, but further information on such methods are currently lacking. The aim of this study was to identify risk factors associated with the isolation of GNB in patients with upper extremity infections.

Methods. We reviewed records of patients with upper extremity infections treated in two urban hospitals between March 2018 and July 2020. Prosthetic joint infections were excluded. Baseline demographic, clinical, surgical and microbiology data was collected. Multivariable logistic regression models were screened using Akaike Information Criterion to establish the best model and risk factors associated with isolation of a GNB.

Results. We identified 111 patients, the majority of whom were male with frequent history of IV drug use. Deep wound cultures in 30 (33.3%) individuals yielded a GNB, and 80% of these cases were polymicrobial. Among the GNB, most prevalent were Enterobacterales (10.4%), HACEK group (6.39%), and *Pseudomonas spp.* (4.5%) (Tables 1. and 2.). Infections were mostly limited to the soft tissue structures of the hand and the forearm, with involvements of the joint and bone being second and third most common. The final model identified the use of IV medications (OR 4.14, 95% CI 1.3 - 14.46) together with prior surgery at the site of infection within the last year (OR 5.56, 95% CI 1.06 - 30.98), and having an open wound on presentation (OR 3.03, 95% CI 1.04 - 9.47) as factors independently associated with isolation of a GNB (Table 3). AUROC of 0.702 indicates acceptable model discrimination.

Table 1: Baseline characteristics

Parameter, %*	GNB n=81	Non- GNB n=30	p value
Age, median (SD)	46.5 (18.07)	45 (13.68)	0.695
Male	70	79	0.475
Smoking, current or past	53.5	60.5	0.643
Intravenous drug use	36.7	29.6	0.632
History of HIV	16.7	12.3	0.544
History of hepatitis C	6.67	12.3	0.508
History of diabetes	20	13.6	0.391
Prison or homeless shelter	16.7	18.5	1.000
Residence in nursing home**	3.33	1.23	0.469
Previous hospitalization**	43.4	37	0.700
Hospitalization within past month	26.7	17.3	0.405
Previous upper extremity infection	26.7	28.4	1.000
History of MRSA***	0	7.41	0.188
Surgery at site of infection**	23.3	28.4	0.770
Prior use of antibiotics**	56.7	46.9	0.485
Treatment with IV medications**	40.0	24.7	0.179
Location of infection			0.86
Proximal to elbow	3.33	3.7	
Elbow	6.67	12.3	
Forearm	10.0	12.3	
Wrist	10.0	11.1	
Hand	66.7	51.9	
Multiple sites or unspecified	3.33	8.64	
Type of infection			0.142
Soft tissue	73.3	80.2	
Joint	16.7	14.8	
Osteomyelitis	10.0	1.23	
Necrotizing fasciitis	0	3.70	
Open wound	50	29.6	0.076
Purulence	63.3	66.7	0.918
SIRS criteria ≥ 2	13.3	28.4	0.163
WBC (K/uL), median (SD)	8.55 (2.7)	10.4 (3.9)	0.069
CRP (mg/L), median (SD)****	19.58 (54.8)	43.03 (81.7)	0.215

* Data shown as percentage of respective group, unless stated otherwise.
** within the past year
*** either infection or colonization
**** CRP on admission available for 95 of 111 patients
Abbreviations: IV, intravenous; GNB, gram negative bacteria; ESRD, end stage renal disease; CRP, C-reactive protein; MRSA, Methicillin-resistant Staphylococcus aureus; WBC, white blood cells; n is the number of patients.

Table 2: Bacterial isolates

Isolated organism	Number (total n=170)	%
Gram positive bacteria (n = 126, 73.2% of isolates)		
Streptococcus species	47	27.64
MSSA	40	23.52
MRSA	25	14.70
Coagulase negative staphylococcus	8	4.70
Other gram positive	6	3.53
Gram negative bacteria (n = 44, 25.6% of isolates)		
Enterobacter Cloacae	7	4.12
Klebsiella species	4	2.35
Escherichia coli	2	1.18
Other Enterobacteriaceae	5	2.94
HACEK group	11	6.47
Pseudomonas species	5	2.94
Other gram negative	10	5.88

Abbreviations: HACEK, Haemophilus species, Aggregatibacter species, Cardiobacterium hominis, Eikenella corrodens, and Kingella species; MSSA, Methicillin-susceptible Staphylococcus aureus; MRSA, Methicillin-resistant Staphylococcus aureus

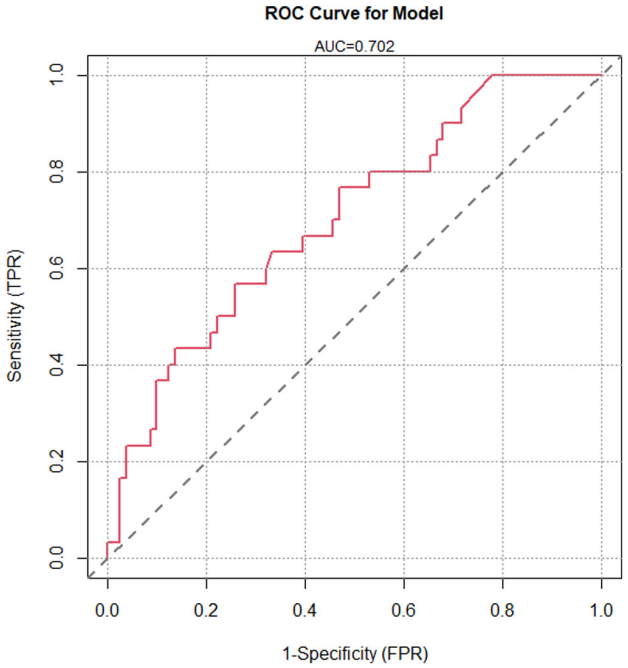
Table 3: Final model

	Model			
	OR	95% CI	SE	p-value
IV drug use	2.56	0.84; 8.08	0.940	0.098
Previous hand infection	0.33	0.08; 1.11	-1.101	0.089
IV medications within 12 months	4.14	1.30; 14.47	1.423	0.019
Previous surgery at the site of infection within 12 months	5.56	1.06; 30.98	1.716	0.040
Open wound	3.03	1.04; 9.47	1.109	0.046
CRP on admission	0.99	0.98; 1.0	-0.004	0.316

Abbreviation: CI, confidence interval; CRP, C-reactive protein; IV, intravenous; SE, standard error; OR, odds ratio.

Conclusion. Our logistic regression model identified significant predictors for isolation of GNB in upper extremity infections within this population. Results of this study will assist clinicians in making a better informed decision for the need of empiric gram negative coverage aimed to support the reduction of patient exposure to unnecessary antimicrobial coverage. External validation of the model is warranted prior to application to clinical care.

Figure 1: AUROC



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1372. Comparison of Healthcare Resource Utilization (HRU) Among Adult Patients Treated with Omadacycline (OMC) for Acute Bacterial Skin and Skin Structure Infections (ABSSSI) or Community-Acquired Bacterial Pneumonia (CABP) in the 30 Day Pre- and Post-OMC Prescription (Rx)

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Session: P-76. Skin and Soft Tissue

Background. Assess 30-day real-world outcomes associated with OMC for the treatment of adults with ABSSSI or CABP. Thirty-day outcomes are an important quality metric for both private and public payers. This retrospective study compared HRU among adult pts treated with OMC for ABSSSI or CABP in the 30-day pre- and post-OMC Rx periods. The pre-post study design was selected to assess how 30-day HRU changed post-OMC RX (proxy for treatment response).

Methods. Pts who received ≥1 OMC outpatient Rx from a large US claims database (10/2018-9/2020) were identified. Pts were classified as ABSSSI or CABP cohort based on presence of ICD-10 code near (-90 d to +30 d) OMC Rx. Within each diagnosis, pts were classified as complicated if any of the following infections were identified in the pre-period (-90 d to + 5 d) (ABSSSI: osteomyelitis (OST), sepsis/bacteremia (S/B), endocarditis, implant, necrotizing fasciitis, meningitis; CABP: severe pneumonia, lung abscess, S/B, endocarditis, meningitis). Risk of inpatient admissions (IP), ED visits, outpatient visits (OP) were compared between the following 2 periods: 30 days pre- and 30-days post-OMC Rx.

Results. During study period, 258 OMC outpatient Rx met inclusion criteria: 189 were ABSSSI and 69 were CABP. Among the 189 ABSSSI pts, 83 were complicated. Most common ABSSSI complicated were OST (53%), S/B (33%), and implant infection (21%). Among the 69 CABP pts, 20 were COM. Most common CABP complicated were S/B (80%) and severe pneumonia (25%). Comparison of HRU in the 30 days pre- to the 30-day post-OMC Rx period are shown in Tables 1 and 2. Among complicated ABSSSI pts, IP decreased by 38% (41% vs 25%; p< 0.05) while ED visits and OP were similar. Among non- complicated ABSSSI pts, IP decreased by 61% (17% vs 7%; p< 0.05), ED visits decreased by 88% (16% vs 2%; p< 0.01) while OP were similar. Among complicated CABP pts, IP decreased by 75% (80% vs 20%; p< 0.01), ED decreased by 100% (40% vs 0%; p< 0.001) while OP were similar. Among non- complicated CABP pts, IP decreased by 75% (33% vs 8%; p< 0.01), while ED visits and OP were similar.

Table 1. Comparison of HRU in the 30-day pre-OMC Rx vs 30-day post-OMC Rx period among ABSSSI pts

	Complicated ABSSSI				Non-complicated ABSSSI			
	30-day pre-OMC Rx	30-day post-OMC Rx	Risk ratio	P value	30-day pre-OMC Rx	30-day post-OMC Rx	Risk ratio	P value
Inpatient (%)	0.41	0.25	0.62	< 0.05 *	0.17	0.07	0.39	< 0.05 *
Emergency department (%)	0.18	0.17	0.93	0.83	0.16	0.02	0.12	< 0.01 *
Outpatient (%)	0.92	0.89	0.97	0.41	0.74	0.75	1.01	0.81

Table 2. Comparison of HRU in the 30-day pre-OMC Rx vs 30-day post-OMC Rx period among CABP pts

	Complicated CABP				Non-complicated CABP			
	30-day pre-OMC Rx	30-day post-OMC Rx	Risk ratio	P value	30-day pre-OMC Rx	30-day post-OMC Rx	Risk ratio	P value
Inpatient (%)	0.8	0.2	0.25	< 0.01 *	0.33	0.08	0.25	< 0.01 *
Emergency department (%)	0.4	0.0	0.0	< 0.001 *	0.14	0.06	0.43	0.22
Outpatient (%)	0.95	0.8	0.84	0.08	0.84	0.82	0.98	0.65

Conclusion. This study provided the first real world characterization of pts treated with OMC for ABSSSI or CABP. Patients who received OMC had lower HRU in the 30-days post- OMC Rx period relative to the 30-day pre-OMC Rx period.

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