

intravenous catheter was placed for patients with concomitant antimicrobials. Follow up was performed and documented via a progress note in the EHR as appropriate. Data was collected via retrospective chart review and statistical analysis was performed using Chi-squared test with Yates' correction.

Results: 101 pre- and 7 patients post-implementation were included in this study. There were a total of 51 patients pre-implementation that received inappropriate OPAT care per the IDSA OPAT guidelines, and post-implementation 2 patients (50.5% vs 28.6%, $p=0.47$). The secondary outcomes of 30-day readmission rates were 17% and 0% ($p=0.52$); and complications related to OPAT (e.g. central-line associated blood stream infections) were 12% and 0% ($p=0.73$), respectively. 2 midline catheters were recommended by the OPAT team, and a cost savings of up to \$6,796 was calculated.

Conclusion: This pilot showed a trend towards decreased inappropriate OPAT prescribing and cost avoidance of an ID pharmacist-driven review of OPAT prior to patient hospital discharge. Limitations to this pilot included being underpowered due to the limited time-frame of the post-implementation period, and an inability for follow up with patients discharged utilizing an alternative home infusion service.

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610. Incidence of Acute Kidney Injury in Outpatient Parenteral Antimicrobial Therapy (OPAT) Patients Receiving Vancomycin

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Session: P-23. Clinical Practice Issues

Background: Vancomycin therapy is known to be associated with nephrotoxicity. Predictors of nephrotoxicity in outpatients are not well defined and have only been reported in relatively small studies. We examined the factors associated with incidence of nephrotoxicity during outpatient parenteral antimicrobial therapy (OPAT) using administrative data.

Methods: A large insurance claims database of privately insured patients (IBM-MarketScan) ages 18 - 64 from 2010 to 2016 was queried for patients discharged from the hospital on vancomycin OPAT. The primary endpoint was 42-day hospital readmission with acute kidney injury (AKI). A Chi-square test was used to examine associations with AKI. Factors with significant associations in univariate analysis were then incorporated into a multivariable logistic regression model.

Results: A total of 14,196 patients were included in the study, median age was 54 years and 53.8% were male. Hospital readmission with AKI occurred in 385 (2.7%). Factors associated with AKI in univariate analysis included older age, living in a rural area, heart failure (CHF), chronic kidney disease (CKD), liver disease, diabetes, cancer, septicemia, MRSA infection, concomitant penicillin therapy, receiving therapy at home versus an infusion center, and infectious diseases consult during index hospitalization. In the multivariable model, septicemia, CHF, CKD, liver disease, and concomitant use of a penicillin family drug were independently associated with increased risk of acute kidney injury (Table).

Conclusion: Septicemia, use of penicillins and some comorbidities were associated with AKI in patients treated with vancomycin OPAT. Patients at high risk for vancomycin nephrotoxicity should be monitored closely and an alternative therapy should be considered.

Table

Variable	All Patients N=14196 N (%)	AKI during Readmission N=385 (2.7) N (%)	No AKI during readmission N=13811 (97.6) N (%)	P value	Multivariate analysis Odds ratio (95% CI)	P value
Age (years)						
18-40	2405 (16.9)	46 (12.0)	2359 (17.1)	0.001	0.93 (0.64-1.37)	0.20
41-50	3086 (21.7)	69 (17.2)	3017 (21.8)		Reference	
51-60	5235 (36.9)	151 (39.2)	5084 (36.8)		1.19 (0.89-1.60)	0.30
61-65	3470 (24.4)	119 (30.9)	3351 (24.3)		1.29 (0.95-1.75)	0.07
Sex (Male)	7635 (53.8)	212 (55.1)	7423 (53.8)	0.61		
Living in rural area	2207 (15.6)	46 (12.0)	2161 (15.7)	0.05	1.29 (0.94-1.77)	0.12
Region						
Northeast	2153 (15.2)	66 (17.1)	2087 (15.1)	0.19		
North Central	4100 (28.9)	109 (28.3)	3991 (28.9)			
South	5779 (40.7)	165 (42.9)	5614 (40.7)			
West	2164 (15.2)	45 (11.7)	2119 (15.3)			
ID consultation	7282 (51.3)	217 (56.4)	7065 (51.2)	0.04	1.17 (0.94-1.43)	0.16
Home therapy vs infusion center	12142 (85.5)	342 (88.8)	11800 (85.4)	0.06	1.31 (0.94-1.81)	0.11
Comorbidities						
CHF	950 (6.7)	64 (16.6)	886 (6.4)	<0.001	1.98 (1.47-2.67)	<0.001
CKD	774 (5.5)	69 (17.9)	705 (5.1)	<0.001	2.94 (2.19-3.94)	<0.001
Drug use	567 (4.0)	20 (5.2)	547 (4.0)	0.22		
Liver disease	524 (3.7)	29 (7.5)	495 (3.6)	<0.001	1.82 (1.22-2.71)	0.003
Diabetes mellitus	4602 (32.4)	164 (42.6)	4438 (32.1)	0.001	1.18 (0.95-1.47)	0.14
Cancer	972 (6.9)	37 (9.6)	935 (6.8)	0.03	0.72 (0.50-1.02)	
Type of infection being treated						
Bone and Joint infections	4560 (32.1)	113 (29.4)	4447 (32.2)	0.24		
Septicemia	3824 (26.9)	161 (41.8)	3663 (26.5)	<0.001	1.77 (1.43-2.19)	<0.001
Intra-abdominal	1002 (7.1)	35 (9.1)	967 (7.0)	0.11		
MRSA infection	2508 (17.7)	83 (21.6)	2425 (17.6)	0.04	1.21 (0.94-1.56)	0.14
Concomitant intravenous antibiotics given						
Penicillins	785 (5.5)	35 (9.1)	750 (5.4)	0.002	1.77 (1.23-2.55)	0.002
Cephalosporins	2907 (20.5)	79 (20.5)	2828 (20.5)	0.98		
Carbapenems	1550 (10.9)	32 (8.3)	1518 (11.0)	0.10		
Aminoglycosides	190 (1.3)	7 (1.8)	183 (1.3)	0.41		
Quinolones	233 (1.6)	5 (1.3)	228 (1.7)	0.59		

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611. Infectious Disease Management of Homeless and Non-Homeless Populations in United States Emergency Departments

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Session: P-23. Clinical Practice Issues

Background: Studies have long documented the increased emergency department usage in the United States by homeless persons compared to their housed counterparts, as well as an increased overall prevalence of infectious diseases. However, there is a gap in knowledge on the treatment that homeless persons receive for these infectious diseases within United States emergency departments compared to their housed counterparts. This study seeks to understand this potential difference in treatment, including diagnostic services tested, procedures performed, and medications prescribed.

Methods: This study utilized a retrospective, cohort study design to analyze data from the 2007-2010 National Hospital Ambulatory Medical Care Survey (NHAMCS) database. Complex sample logistic regression analysis was used to compare variables, including diagnostic services, procedures, and medication classes prescribed between homeless and private residence individuals seeking emergency department treatment for infectious diseases. This provided an odds ratio to compare the two populations, which was then adjusted for confounding variables.

Results: Compared to private residence individuals, homeless persons were more likely (OR: 10.99, $p < 0.05$, CI: 1.08-111.40) to receive sutures or staples when presenting with an infectious disease in United States emergency departments. Compared to private residence persons, homeless individuals were less likely (OR: 0.29, $p < 0.05$, CI: 0.10-0.87) to be provided medications or immunizations when presenting with an infectious disease in United States emergency departments, and significant differences were detected in prescribing habits of multiple medication classes.

Conclusion: This study detected a significant difference in suturing/stapling and medication prescribing patterns for homeless persons with an infectious disease in United States emergency departments, compared to their housed counterparts. These results provide a platform for continual research.

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612. In-Person vs Tele-Infectious Disease Care: Is One Better?

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Session: P-23. Clinical Practice Issues

Background: Telemedicine (TM) has allowed physicians to expand beyond traditional in-person practice to provide care at remote locations. Initial performance of TM programs in ID has been reported, including favorable outcomes, but limited data exists on how inpatient Tele-ID compares to in-person.^{1,2} To address this gap, we analyzed data from hospitals that transitioned from in-person ID care to Tele-ID.

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Methods: Travel time between the 3 rural Pennsylvania hospitals (total 432 inpatient beds) by car is 1 hour 40 minutes. All in-person consults were provided by an independent ID physician who traveled daily between sites. Starting July 2018, all consults were provided by Tele-ID consisting of one full-time equivalent physician. This included live audio-video visits and e-consults. Data were extracted from electronic health record; between 1/1-2018-6/30/2018 for in-person and 7/1-2018-12/30/2018 for Tele-ID. Key outcomes assessed were number of initial encounters, length of stay (LOS) after ID consult, proportions of patients discharged home, transferred to tertiary centers, and ID related readmission at 30 days.

Results: Study population consisted of 642 encounters with majority being Caucasian, female and average age 67 years (Table 1). Tele-ID had higher comorbidity scores vs in-person ID (Table 1). Total encounters were significantly greater for Tele-ID than in-person ID (Table 2; $p=0.018$). LOS after ID consult, transfers to tertiary centers, readmissions at 30 days, and discharges home were similar between the two groups (Table 2). Most common diagnosis was "bacteremia," notably Tele-ID made a broader range of diagnosis (Figure 1). Limitations include a small sample size and possibility of a temporal bias, although the patient characteristics were similar except for higher co-morbidity for the Tele-ID service.

Table 1: Characteristics of the Study Population

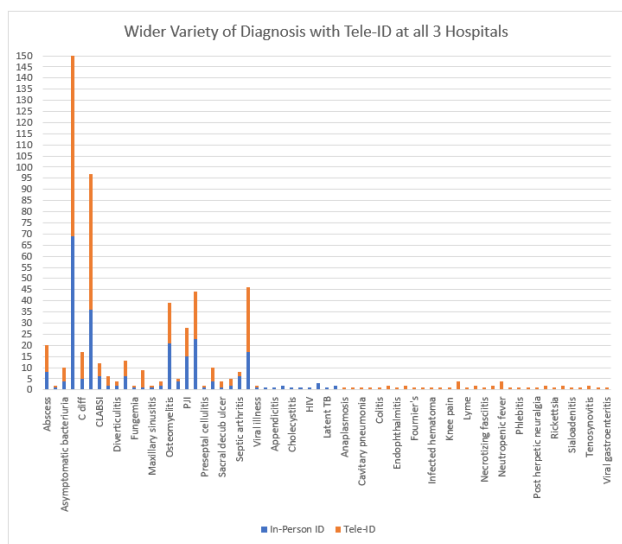
	Hospital #1		Hospital #2 and #3		Overall
	In-person ID	Tele-ID	In-person ID	Tele-ID	
Total	147	239	104	152	642
Encounters					
Caucasian (%)	126 (85.7)	205 (85.8)	97 (93.2)	145 (95.4)	573 (89.3)
Female (%)	74 (50.3)	141 (59.0)	54 (51.9)	79 (51.9)	348 (54.2)
Age (years)	67.4	66.7	66.5	67.3	67.0
BMI (average)	31.5	30.9	32.6	34.7	32.4
Comorbidity	5.4	5.8	6.4	7.0	6.2
Score (average)*					

* = Charlson Comorbidity Score

Table 2: Primary Outcomes of Consulted Patients

	Hospital #1		Hospital #2 and #3		Overall
	In-person ID	Tele-ID	In-person ID	Tele-ID	
Total Encounters	147	239	104	152	p=0.018
LOS after ID consult (Days)	5.3	4.6	3.6	3.6	p=0.468
ID Related Readmission at 30 days (%)	12 (8.2)	7 (2.9)	4 (3.8)	3 (2.0)	p=0.072
Transfer to tertiary center (%)	17 (11.6)	23 (9.6)	16 (15.4)	17 (11.2)	p=0.301
Discharge to Home (%)	63 (42.9)	121 (50.6)	64 (61.5)	95 (62.5)	p=0.333

Figure 1: Wider variety of ID diagnosis by Tele-ID service



Conclusion: This comparative study shows that patient outcomes are similar between in-person and Tele-ID, despite higher volume and complexity encountered by Tele-ID. The greater number of consults and broader range of diagnosis made by Tele-ID suggests greater productivity, possibly related to travel time elimination. Tele-ID appears to be a good alternative solution for rural locations that lack in-person access to ID care.

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613. Lessons learned from a Rhode Island academic out-patient Lyme and tick-borne disease clinic

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Session: P-23. Clinical Practice Issues

Background: Although the prevalence of tick-borne diseases (TBD) continues to increase, there remains significant confusion regarding treatment for Lyme and other TBDs. We conducted a chart review of all new patients that came to an academic center for Lyme and TBDs. We then initiated a quality improvement project

for feedback from a small subset of patients with Post-treatment Lyme disease syndrome (PTLDS).

Methods: Charts of patients visiting the clinic between March and November 2018 were reviewed. Data abstracted from the electronic health record included demographics, laboratory and clinical data. A small subset of patients who reported a history of Lyme and at least 6 months of symptoms after antibiotic treatment were enrolled in a phone survey to evaluate their experience with treatment for PTLDS.

Results: Symptoms most commonly seen in 218 new patients included fatigue (66.5%), joint pain (58.2%), cognitive difficulty (32.1%), headache (27.9%) and sleep disturbance (27.5%). 87% had already received tick-borne disease directed antibiotic treatment. Over half (60.5%) of patients report having symptoms for more than 6 months. More than half of patients (54.8%) who had more than 6 months of Lyme-related symptoms had positive serological testing. Common themes identified in the 16 phone surveys of patients with PTLDS conducted so far included significant frustration related to the dismissive attitudes from medical professionals (n=9/16), and many sought alternative or complementary therapies (n=11/16). Six patients reported receiving very long-term antibiotic regimens from other Lyme specialists. Many patients expressed satisfaction with the visit and medical advice even in the absence of curative therapy (n=9/16), although a significant number continued to seek care elsewhere (n=6/16).

Conclusion: More than half of new patients reported symptoms lasting more than 6 months after targeted antibiotic therapy. Further research is needed to develop interventions for the common symptoms of fatigue, joint pain, cognitive difficulty and sleep disturbance. Treatments to improve sleep, diet, and physical activity and decrease inflammation among patients who suffer from PTLDS are needed.

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614. Long-Acting Lipoglycopeptides for the Treatment of Bone and Joint Infections and Bacteremia in Infectious Disease Outpatient Infusion Clinics

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Background: Long-acting lipoglycopeptides (LGP) are approved for the treatment of acute bacterial skin and skin-structure infections. Broad Gram-positive coverage and weekly dosing regimens are useful for other diagnoses, but real-world data supporting such use are sparse. We review our experience of dalbavancin and oritavancin for the treatment of bone and joint infection (BJI) and bacteremia (BAC) in outpatient infusion clinics (OICs).

Methods: We conducted a multicenter, retrospective, observational cohort study of patients (pts) receiving long-acting LGPs in OICs over 2 yrs from 2018-2019 for BJI and BAC. Data collected included demographics, diagnosis, dosing regimen, microbiology, clinical outcomes, and adverse events (AEs). Clinical success, defined as resolution of infection with continued oral antibiotics allowed, was assessed at the next follow-up visit. Worsening infection, the need for additional intravenous therapy, and discontinuations during therapy were deemed non-successful.

Results: We identified 70 pts (mean age: 64±16 years, 53% male) from 25 OICs, who received dalbavancin (n=50), oritavancin (n=19) and both (n=1). BJI accounted for 55 (79%) with 31 osteomyelitis, 9 bursitis, 7 prosthetic joint, 7 septic arthritis and 1 tenosynovitis. BAC was the primary diagnosis in 15 (21%) and sources were 6 device, 2 lower respiratory tract, 2 urinary tract and 5 unknown. 46% of pts were treated in the OIC without prior hospitalization. 72 Gram-positive isolates were obtained from 67 pts, with *Staphylococcus aureus* predominant (42/72, 58%), including methicillin-resistant (26/72, 36%) and methicillin-susceptible isolates (16/72, 22%). Median number of doses administered were 2 [IQR 1-2] in BJI and 1 in BAC [IQR 1-2]. Overall clinical success was 86% (57/66), with 4 non-evaluable. BJI had 85% success (44/52), with 90% in osteomyelitis (28/31), 50% in prosthetic joint (3/6) and 87% (13/15) in the others. Clinical success was 93% (13/14) in BAC. Three pts (4%) on dalbavancin experienced mild AEs, none resulting in discontinuation of therapy.

Conclusion: This multicenter real-world study of long-acting LGPs demonstrates safety and high clinical success rates in BJI and BAC. Our experience suggests a role for use of these agents in treatment of BJI and BAC in the outpatient setting.

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615. Overlooking those at Intermediate Risk? ASCVD Prevention Measures among People Living with HIV at an Urban Academic Medical Center

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