

**598. Correlation of International Classification of Diseases (ICD) codes to initial provider-selected antibiotic indications in hospitalized adult patients within the Duke Antimicrobial Stewardship Outreach Network (DASON)**

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**Background:** Provider-selected antibiotic indications are a measure to help track antibiotic use, and facilitate stewardship activities. International Classification of Diseases 10<sup>th</sup> version (ICD-10) codes have been widely used in the medical field for a variety of purposes, including billing for reimbursement, disease epidemiology, administration, and research. The ability of these codes to accurately describe the true disease diagnosis has been questioned. The purpose of this study is to provide insight into correlation between ICD-10 codes and provider-selected antibiotic indications recorded upon antibiotic order entry.

**Methods:** This multicenter, retrospective cohort study was performed using data from 17 hospitals in the DASON network. Antibiotic orders during calendar year 2019 for inpatients ≥ 18 years of age that included an indication for use were extracted from the DASON antimicrobial stewardship assessment portal. Orders with the antibiotic indication category of prophylaxis (medical or surgical) and other were excluded. The primary outcome was agreement between antibiotic indication and any discharge ICD-10 code from the same hospital admission. Secondary analyses stratified results by antibiotic and indication. Descriptive statistics were used to describe outcomes.

**Results:** A total of 246,999 unique antibiotic orders were identified in 180,109 admissions. After removing prophylaxis (n=75,124) and other (n=36,359), 135,516 orders were included. Most orders did not have an ICD-10 code matching the prescriber indication (92,237 [68%]). All indications except HEENT (18% mismatch) and genitourinary infections (46% mismatch) lacked a corresponding diagnosis code in more than 50% of cases (Table 1). Urinary tract infections (93%), bloodstream infections (90%), and central nervous system infections (80%) showed the highest rates of mismatch among indications (Table 1).

Table 1: Correlation of ICD-10 Codes to Provider Selected Indications

Clinical Indication	N	Match - n (%)	Mismatch - n (%)
Pneumonia	32648	14023 (43.0)	18625 (57.0)
Skin or Soft Tissue Infection	30878	12303 (39.8)	18575 (60.2)
Urinary Tract Infection	27349	1939 (7.1)	25410 (93.9)
Intra-abdominal Infection	15681	6579 (42.0)	9102 (58.0)
Blood Infection	9226	877 (9.5)	8349 (90.5)
Sepsis	8179	3085 (37.7)	5094 (62.3)
Bone or Joint Infection	5280	1530 (29.0)	3750 (71.0)
Clostridium difficile	1805	847 (47.0)	958 (53.0)
HEENT	1531	1249 (81.6)	282 (18.4)
Neutropenic Fever	1247	402 (32.2)	845 (68.8)
CNS infection	1066	209 (19.6)	857 (80.4)
Cardiovascular	371	130 (35.0)	241 (65.0)
Tuberculosis/NTM	183	67 (36.6)	116 (63.4)
Genitourinary	72	39 (54.2)	33 (45.8)

**Conclusion:** We observed a high rate of mismatch between antibiotic indications and ICD-10 codes. Provider-selected antibiotic indications at the time of empiric treatment may be more reflective of diagnostic differential but is a poor indicator of ultimate patient diagnosis.

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**599. Dalbavancin Utilization in Rural Healthcare Setting: A Single Center Three Years' Experience**

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**Background:** Dalbavancin is a second generation lipoglycopeptide, approved by the Food and Drug Administration (FDA) for treatment of acute bacterial skin and skin structure infections (ABSSSI). The weekly dosing of Dalbavancin has encouraged its off-label use to treat other severe infections, especially in patients deemed to be poor candidates for intravenous antimicrobial therapy through a long-term intravenous catheter.

**Methods:** Single center retrospective chart review of 33 patients who were planned to receive Dalbavancin between March 2015 and March 2019 at a rural medical center in New Hampshire.

We reviewed demographics, indications, microbiological, intravenous drug use status and compliance data.

**Results:** Dalbavancin therapy was planned for 25/33 patients (75.75%) specifically due to safety concerns around use of a peripherally inserted central catheter (PICC) in Persons Who Inject Drugs (PWID). All 25 patients (75.75%) were actively injecting at the time of the infection with 16/33 patients (48.48%) receiving or newly enrolled in medication assisted treatment. The planned duration of therapy was not completed in 15/33 patients (45.45%) and all were PWID. 11/33 patients (33.3%) were lost to follow up. Additionally, 6 patients experienced insurance coverage issues or difficulty having peripheral access placed. The average driving distance between home and infusion suite was 47 miles.

Methicillin Resistant *Staphylococcus aureus* (19/33) and Methicillin Susceptible *Staphylococcus aureus* (8/33) were the most commonly treated organisms and the average pathogen-directed therapy duration prior to starting Dalbavancin was 15 days.

**Conclusion:** Despite recent data suggesting that Dalbavancin therapy for PWID has good compliance rates in urban settings, our experience suggests that the same principle might not be true in rural settings as the non-compliance and loss to follow up rates were very high.

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**600. Decreased Hospital Readmission After Programmatic Strengthening of an Outpatient Parenteral Antimicrobial Therapy (OPAT) Program**

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**Session:** P-23. Clinical Practice Issues

**Background:** Although it is recommended that an OPAT program should be managed by a formal OPAT team that supports the treating physician, many OPAT programs face challenges in obtaining necessary program staff (i.e. nurses or pharmacists) due to limited data examining the impact of a dedicated OPAT team on patient outcomes. Our objective was to compare OPAT-related readmission rates among patients receiving OPAT before and after the implementation of a strengthened OPAT program.

**Methods:** This retrospective quasi-experiment compared adult patients discharged on intravenous (IV) antibiotics from the University of Illinois Hospital before and after implementation of programmatic changes to strengthen the OPAT program. Data from our previous study were used as the pre-intervention group (1/1/2012 to 8/1/2013), where only individual infectious disease (ID) physicians coordinated OPAT. Post-intervention (10/1/2017 to 1/1/2019), a dedicated OPAT nurse provided full time support to the treating ID physicians through care coordination, utilization of protocols for lab monitoring and management, and enhanced documentation. Factors associated with readmission for OPAT-related problems at a significance level of p< 0.1 in univariate analysis were eligible for testing in a forward stepwise multinomial logistic regression to identify independent predictors of readmission.

**Results:** Demographics, antimicrobial indications, and OPAT administration location of the 428 patients pre- and post-intervention are listed in Table 1. After implementation of the strengthened OPAT program, the readmission rate due to OPAT-related complications decreased from 17.8% (13/73) to 6.5% (23/355) (p=0.001). OPAT-related readmission reasons included: infection recurrence/progression (56%), adverse drug reaction (28%), or line-associated issues (17%). Independent predictors of hospital readmission due to OPAT-related problems are listed in Table 2.

Table 1. OPAT Patient Demographics and Factors Pre- and Post-intervention

Patient Demographics	Pre-intervention N=73	Post-intervention N=355	p-value
Age, years, median (IQR)	57 (46-66)	52 (43-60)	.068
Male sex	45 (61.6%)	184 (51.8%)	.126
<b>Antimicrobial Indications</b>			
Bone and joint infection	41 (56.2%)	133 (37.5%)	.003
CNS infection	13 (17.8%)	34 (9.6%)	.041
Skin/ soft tissue infection	6 (8.2%)	29 (8.2%)	.989
Genital/ urinary tract infection	2 (2.7%)	36 (10.1%)	.043
Intra-abdominal infection	2 (2.7%)	34 (9.6%)	.055
Endocarditis	1 (1.4%)	11 (3.1%)	.700
Pneumonia	0	4 (1.1%)	>0.999
Other	8 (11%)	74 (20.8%)	.051
<b>OPAT Administration Location</b>			
Home	44 (60.3%)	190 (53.5%)	.291
Skilled nursing facility	22 (30.1%)	57 (16.1%)	.005
Subacute rehabilitation facility	7 (9.6%)	105 (29.6%)	<.001
Infusion center	0	1 (0.3%)	>0.999