

Transitions of Care Quality Metrics in Patients Discharged on Parenteral Antimicrobial Therapy in a Large Urban Hospital that Lacks a Formal Outpatient Parenteral Antimicrobial Therapy Program

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Background

- With the evidence demonstrating the need for antimicrobial stewardship in the transition from inpatient to outpatient intravenous (IV) antibiotic therapy, it is imperative to have effective communication and coordination in a multidisciplinary team.
- OPAT assessments recommended by the Infectious Disease Society of America (IDSA) have been associated with reduced hospital readmissions, decreased length of stay, and fewer line-related infections.
- The goal of this study is to assess quality metrics in a sample of patients discharged on IV antibiotics prior to initiation of a pilot OPAT program.

Methods

- This is a retrospective, multicenter chart review of patients admitted to Temple University Health System from 10/1/2020-10/31/2021 who were discharged on IV antibiotics.
- Patients with multiple admissions were documented as separate
- Data were collected on the appropriateness of OPAT indication, pathogens targeted, antibiotics used, performance of infection diseases (ID) consult, line selection, clinical outcomes, and demographics.
- Primary endpoint = the percentage of global IV antibiotic prescribing errors (antibiotic, dose, route, frequency, duration, parenteral access device)

Defining Terms

- **Appropriate antibiotic choice:** Based on indication and guidelines
- **Dose and frequency:** Based on hospital dose adjustment protocol and indication.
- **Duration:** If indication is not applicable, decision based on infectious diseases consult review
- **Prescribing errors:** antibiotic choice, dose, frequency, duration, inability to use an oral agent, administration appropriateness, parenteral access device
- **Appropriate parenteral access device:** Based on 2018 Infectious Diseases Society of America Outpatient Parenteral Antimicrobial Therapy guidelines

Results

Table 1: Demographics		N=109
N (%) unless otherwise noted		
Male		60 (55)
Male, mean ± SD		63 ± 22
Antibiotic allergies		
Penicillin		10
Other		31
Allergy manifestation		
Anaphylaxis		2
Hives/swelling		9
Other		13
Social factors		
PWID/homeless/alcohol abuse/long-term care facility		20 (18)
Organism		
Gram positive		73
Gram negative		54
Other		10
Non identified		5
Indication		
SSTI/ABSSSI		21
UTI		22
PNA		8
IE		8
Osteomyelitis/prosthetic joint infection/septic arthritis/epidural abscess		20
Intra-abdominal		4
Bacteremia		44
Other		4
ID consult		97 (89)
Disposition		
AMA		1 (9)
SNF/LTAC/rehabilitation		62 (57)
Dialysis		14 (13)
Treatment at home		31 (28)
Hospice		1 (9)
Hospital length of stay, mean ± SD		12 (3-40)

Table 2: Antibiotic Prescription Appropriateness		N=109
N (%) unless otherwise noted		
Oral option		20 (18)
Antibiotic choice		101 (93)
Dose		90 (83)
Frequency		102 (94)
Duration		70 (64)
Administration appropriate (intravenous push versus continuous)		105 (96)
Appropriate parenteral access device recommended		71 (65)
Completion of therapy		
Yes		55 (50)
No		16 (15)
Unknown		38 (35)

Results

- There were 748 total discharges on IV antimicrobials in 705 unique pts
- A random sample of 109 discharges were chosen.
- **Twenty (18%) had an oral antimicrobial available as an option**
- ID recommended laboratory monitoring for 44 (40%) patients, of which 8 (18%) were sent to ID clinic; **all had abnormal findings.**
- Of the 25 patients who required ID follow-up, 11 had a scheduled ID appointment of which 8 attended. No mortality was identified from these patients, but two were readmitted within 30 days.
- **Overall, 39% patients were readmitted within 30 days, 6% had mortality within 30 days and 50% were known to have completed therapy.**

Conclusion

- This study captured a 65% rate of global prescribing errors in a sample of 109 patients receiving IV antibiotics at discharge. These include all antibiotic prescribing errors.
- This is deemed a significant amount of prescribing errors at discharge leading to poor patient outcomes while also increasing hospital costs.
- The findings demonstrate an urgent need for an OPAT program to help with antimicrobial, parenteral access selection, monitoring, and follow-up with infectious diseases.
- Guidelines recommend infectious diseases expert review prior to initiating OPAT. By implementing this program, it is expected the health system will have improved infectious diseases outpatient follow-up, improved laboratory monitoring, and improved readmission metrics.



*PWID: people who inject drug; SSTI: skin and soft tissue infections; ABSSSI: acute bacterial skin and skin structure infections; UTI: urinary tract infections; PNA: pneumonia; IE: infective endocarditis; ID: infectious diseases; AMA: against medical advice; SNF: skilled-nursing facility; LTAC: long-term acute care