Implementation of an Outpatient Parenteral Antimicrobial Therapy (OPAT) Collaborative for Patients with *Staphylococcus aureus* or Gram-Negative Bacilli Bacteremia Requiring Home Infusion: The PANTHIR Program

Jennifer K. Ross, PharmD, BCIDP[1,2]; Kimberly D. Boeser, PharmD, MPH, BCIDP[1,2]; Malia Hain, PharmD Candidate[4]; Kristi Killelea, PharmD, BCPS[2]; Dana Simonson, PharmD, BCPS[2]; Alison Galdys, MD[3]

[1]M Health Fairview University of Minnesota Medical Center; [2]Fairview Pharmacy Services; [3]University of Minnesota; [4]University of Minnesota College of Pharmacy; Minneapolis, MN

A collaboration between University of Minnesota, University of Minnesota Physicians and Fairview Health Services

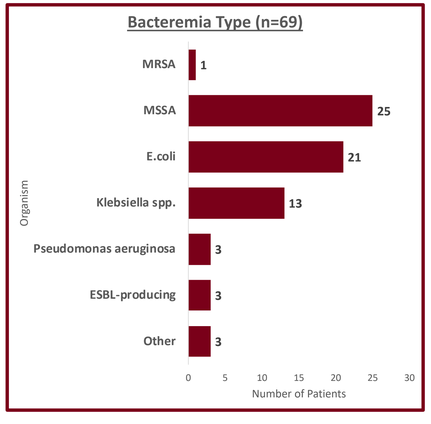
BACKGROUND

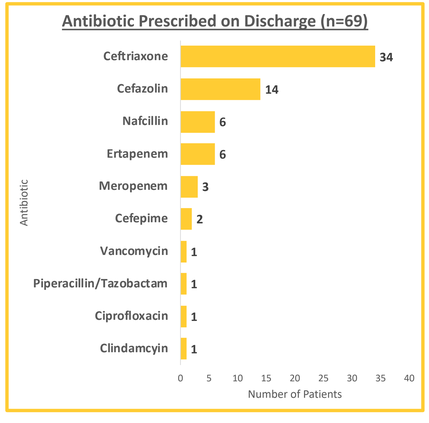
- Outpatient parenteral antimicrobial therapy (OPAT) has been shown to be safe, efficacious, and cost-effective[1,2,6]
- Methicillin-susceptible or methicillin-resistant *Staphylococcus aureus* (MSSA, MRSA) or Gram-negative bacilli (GNB) bacteremia often requires extended parenteral antibiotic(s) and is associated with significant morbidity and mortality[4]
- Home infusion pharmacists can retrieve OPAT discharge orders from the electronic health record (EHR) to ensure completion of OPAT care plans, including drug therapy monitoring and follow-up

METHODS

- Retrospective review of patients (≥ 18 years) at the University of Minnesota Medical Center with MRSA, MSSA, or GNB bacteremia using home infusion services within M Health Fairview over a 26-month period (4/2016-6/2018)
- Gap analysis and creation of the Parenteral ANtimicrobial therapy Transitions to Home Infusion Review (PANTHIR) program as an interdisciplinary collaborative with ID providers, ID pharmacists, clinical information specialist, and home infusion pharmacists
- Core PANTHIR program core elements:
  - Inpatient identification
  - ID pharmacist review
  - OPAT care plan coordination
  - OPAT outcome analysis

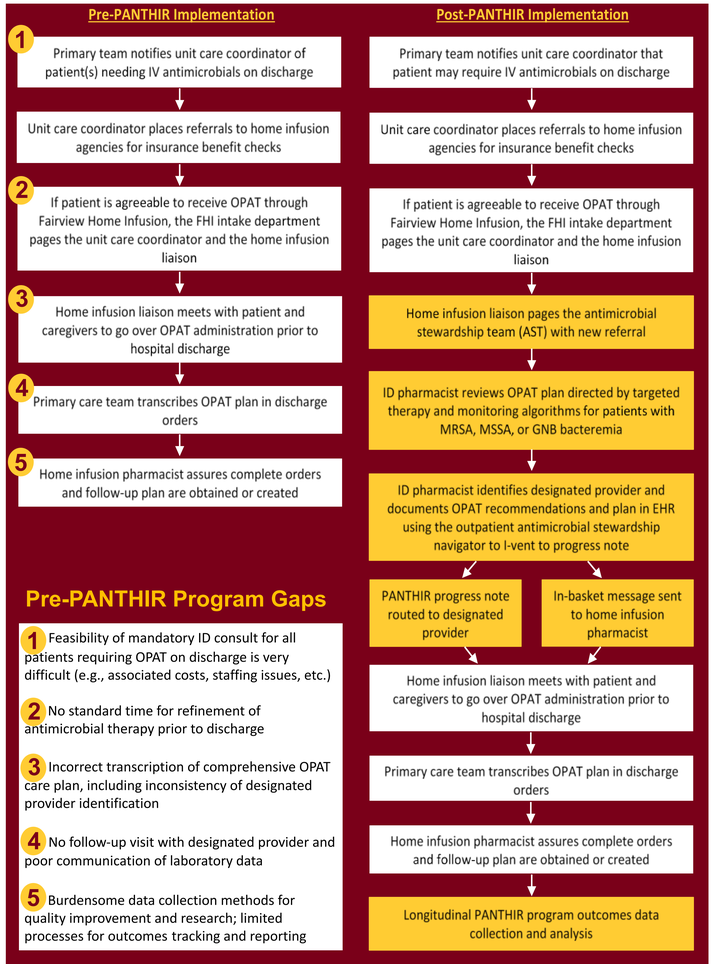
Hospital readmission rates, emergency department (ED) visits, and adverse drug events (ADEs) are frequent among patients with MRSA, MSSA, or Gram-negative bacilli bacteremia requiring OPAT via home infusion.





30-day unplanned hospitalizations (n=69)		30-day ED visits (n=69)	
Total (%)	OPAT-related (%)	Total (%)	OPAT-related (%)
16 (23)	4 (5.8)	21 (30)	8 (12)

Total (%) ADEs (n=69)	Mild (%) ADEs	Moderate (%) ADEs	Severe (%) ADEs
18 (26)	8 (12)	8 (12)	2 (3)



Pre-PANTHIR Program Gaps

1. Feasibility of mandatory ID consult for all patients requiring OPAT on discharge is very difficult (e.g., associated costs, staffing issues, etc.)
2. No standard time for refinement of antimicrobial therapy prior to discharge
3. Incorrect transcription of comprehensive OPAT care plan, including inconsistency of designated provider identification
4. No follow-up visit with designated provider and poor communication of laboratory data
5. Burdensome data collection methods for quality improvement and research; limited processes for outcomes tracking and reporting

CONCLUSIONS

- The transition from inpatient to outpatient care is a vulnerable period for successful delivery of OPAT due to potential for communication errors that can translate to imprecise care plans
- Both unplanned hospitalizations within 30 days of discharge and ADEs are higher than published outcomes among OPAT patients with heterogenous infections[3,5]
- Our cohort also represents a shorter duration of therapy (22 days) and use of less nephrotoxic agents with only 1 patient receiving vancomycin and no receipt of aminoglycosides
- Next, we plan to compare post-implementation outcomes to determine PANTHIR program impact, broaden retrospective review to target high risk groups, and expand OPAT collaborative reach to all patients discharging on parenteral antimicrobial therapy

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