Title: Outcomes After Implementation of a Care Transition Pathway for Patients Discharged on Outpatient Parenteral Antimicrobial Therapy (OPAT)

Abstract:

**Background:** Outpatient parenteral antimicrobial therapy (OPAT) is a widely used low cost alternative to acute inpatient care for patients requiring intravenous antibiotics. Despite continued growth of OPAT, 30-40% of these patients may develop complications or re-hospitalization. A Healthcare Failure Mode Effect Analysis has shown that OPAT may have 6 processes, 67 sub-processes and 217 possible failures leading to complications.

**Statement of the problem:** Prior to June 2013, baseline 30-day readmission rates (all cause) were 32% among patients enrolled in the University of Colorado OPAT Program. Using quality improvement methods, we sought to decrease 30-day readmission rates of OPAT patients by at least 15%.

**Methodology:** We created an OPAT team conformed by dedicated ID PA coordinators, ID attending physicians and ID RNs. Members targeted several key communication drivers for appropriate discharge and monitoring of OPAT patients during the following phases: pre-discharge, inpatient to OPAT transition, outpatient and at-OPAT conclusion. Interventions directed towards these key drivers were tested using Plan-Do-Study-Act cycles. Staggered interventions implemented between August and November 2013 included: a) Addition of a part-time Midlevel provider as the OPAT coordinator; b) Incorporation of an OPAT care transition note within the patient’s EMR prior to discharge; c) Weekly documentation and communication of orders to OPAT service providers; d) Institution of weekly “virtual OPAT rounds” to review the appropriateness and safety of the treatment. Data on demographics, comorbidities, diagnosis, microbiology, antimicrobials, care transition, outpatient monitoring, readmission and complications were collected in a RedCap OPAT Safety database.

**Results:** We collected data on 200 patients who received OPAT between 12/2013 and 12/2014. The median age was 58 (IQR=45-66) with male predominance (59%). Most received OPAT from a home infusion company (67%). Leading diagnoses for OPAT were bone/joint infections (38%), bacteremia (28%) and urinary tract infections (9%). Average duration of therapy was 34 days (SD 23). The overall 30-day all cause readmission rate decreased to 23.5% (47/200) after implementation of these interventions.

**Next steps:**

- Identify predictors of 30-day readmissions in this population
- Develop QI interventions targeted towards those at highest risk for complications
- Perform a cost analysis as a result of hospital avoidance