Impact of Transplant Pharmacist Services on Outcomes in the Ambulatory Setting
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Opportunity

Background
- Transplant is the only medical subspecialty in which a pharmacist is required to be a member of the multidisciplinary healthcare team.
- Over the past two decades, the role of transplant pharmacists in both inpatient and outpatient care have expanded following implementation of the CMS Conditions of Participation.
- The 2004 UNOS Bylaws provide additional details about the expected role of the transplant pharmacist.
  - This pharmacist should have experience in transplant pharmacotherapy and is responsible for performing or overseeing others who perform the following functions:
    - Evaluates, identifies, and solves medication related problems for transplant recipients
    - Educates transplant recipients and their family members on transplant medications and adherence to medication regimen
    - Acts as liaison between patient and patients’ families and other health care team members regarding medication issues
    - Prepares and assists with discharge planning for all transplant recipients
    - Provides drug information for all members of the transplant team
- In addition to the CMS standards and UNOS Bylaws, advances in organ transplantation and progress in management of narrow therapeutic agents has resulted in increased incorporation of specialized pharmacists into the transplant team.
- Despite this growth, there is little data published detailing the expanded role and responsibilities of the transplant pharmacist across the continuum of care.

Objective
This project evaluates the impact of pre and post transplant pharmacist services on patient outcomes in the ambulatory setting in an effort to demonstrate how the expansion of transplant pharmacist services positively impacts patient outcomes.

Approach
- This was a single center retrospective case-control study of approximately 250 kidney, liver, and pancreatic transplant recipients (~280 organs total)
  - Organ Transplanted
    - Kidney
    - Liver
    - Pancreas
- The study group consists of adult abdominal transplant recipients who received outpatient transplant pharmacy services between April 2015 and October 2016. These patients will be compared to a historical control group who were transplanted between August 2013 and December 2014.
- Patient-related baseline data including sex, race, preferred language, education, age at transplant, previous transplants, past medical history, and transplant characteristics are being collected.
- Patients will be followed in clinic for a minimum of one year post-transplant. There will be no prospective data collection in this study.
- Patients were excluded if they died within one week of transplant. No patients were excluded from this analysis because of being lost to follow up.

Data or Results
- The primary end point of 90-day all-cause readmission rates will be evaluated using the chi squared test.
- Secondary endpoints of readmission at 30 or > 90 days will also be evaluated using the chi squared test.
- Patient, transplant, and process-level risk factors that contribute to 30-day readmissions will be evaluated using univariate and multivariate analysis.

Impact
- This project is unique in that limited data exists analyzing patient outcomes with transplant pharmacist intervention.
- The results of this project may support the creation of additional transplant pharmacist positions at transplant centers.
- Given the significant organ shortage in the United States, the findings of this study have the potential to support expanded guidance in the CMS standards that would require post-transplant follow up with a transplant pharmacist to improve adherence and graft survival.