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Evaluation of a Pharmacist Discharge Counseling Process in Pulmonary Hypertension Patients

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Background: Patients with pulmonary arterial hypertension (PAH) frequently encounter episodes of disease exacerbation characterized by fluid overload and right heart failure resulting in hospitalization. Diuretics are a mainstay in treatment with the goal of decreasing total body volume in order to decrease stress on the heart to increase cardiac output and cardiac index. These patients present an opportunity to incorporate pharmacists into the discharge process by counseling on diuretics, fluid restriction, and diet compliance. Similar education has been associated with decreasing left-sided heart failure admissions therefore, it can be presumed to decrease admissions in the PAH population.

The purpose of this abstract is to evaluate the 30-day readmission rates after an institution-specific pharmacist discharge counseling process was implemented for patients with pulmonary arterial hypertension.

Methods: The original study in 2015 found the most common reason for hospital admission was PAH exacerbations secondary to fluid overload in patients on prostacyclin therapy. Implementation of a standardized discharge process was a key phase of the previous study which included a patient specific diuretic handout and electronic communication with the outpatient PH nurses. Phase 3 of the original study assessed the effect of the discharge process by evaluating 30 day readmission rates and the reason for readmission with the intended outcome of decreased admissions. Although no difference in 30-day readmissions was found at that time, positive outcomes with outpatient PH clinic nurses was noted via survey. Since that study, the pharmacists' education and workflow has been continued for patients on any PAH therapy and diuretics. As a follow-up, this specific abstract is assessing compliance of the pharmacist education process and how it may affect 30-day readmission rates from May 1, 2015 to September 30, 2017, after the completion of the previous study.

Results: There were 11 patients that met criteria for inclusion with volume overload, once again, being the most common reason for re-admission (45.5%). Of the patients readmitted within 30 days for fluid overload, 80% were counseled by a pharmacist and 60% of the counseling notes were forwarded to the outpatient PH nurse. Possible reasons why patients were not counseled by a pharmacist include patients being discharged from the intensive care unit, patients on a care team without a PH-specialized pharmacist, and PH pharmacist(s) unaware of admission if not on prostacyclin therapy.

Conclusions: The low number of total 30-day readmissions over a 2.5 year period (n=11) may indicate, among other processes and standards of patient care, that pharmacist counseling benefits this patient population. Future directions include improvement in identifying PAH patients admitted to the hospital, enhanced education to pharmacists regarding the discharge education process for PAH patients to reduce re-admissions and improved transitions of care by increasing the frequency of routing discharge education notes to the outpatient PAH nurse.



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Figure 1. Patients Readmitted in 30 days Demographics

| Patients Readmitted in 30 days Demographics | | |
|--|------------------|-------------------|
| | 2015 Study (n=6) | 2017 Study (n=11) |
| Age, years- median (IQR) | 52 (40-66.3) | 58 (45.5-65) |
| Male- n (%) | 8 (66.7) | 4 (36.3) |
| Alive at time of data collection- n (%) | 6 (100) | 5 (45.4) |
| mPAP on RHC, mmHg- median (IQR) | - | 59.5 (39.5-59.5) |
| Discharged from ICU- n (%) | 1 (16.7) | 1 (9) |
| Hospital length of stay on first admission, days- median (IQR) | 5 (2.5-6) | 9 (5-12.5) |
| Number of days until readmit- median (IQR) | ??? | ??? |
| New start- n (%) | 0 (0) | 5 (45.5) |

Figure 2. Readmission Characteristics

| Readmission Characteristics | | |
|--|-------------------------|--------------------------|
| | 2015 Study (n=6) | 2017 Study (n=11) |
| Reason for 30-day Readmission- n (%) | | |
| Volume Overload | 1 (16.7) | 5 (45.5) |
| Line complication | 3 (50) | 2 (18.2) |
| Non-compliance | - | 2 (18.2) |
| Medication complication | - | 2 (18.2) |
| Type of Prostacyclin- n (%) | | |
| Treprostinil | 4 (66.7) | 7 (63.6) |
| Epoprostenol | 2 (33.3) | 1 (9) |
| Route of Prostacyclin- n (%) | | |
| Intravenous | 4 (66.7) | 6 (54.5) |
| Inhaled | 2 (33.3) | 2 (18.1) |
| Oral | - | - |
| Concurrent Oral PAH Medication- n (%) | | |
| Yes | 4 (66.7) | 6 (54.5) |

Figure 3. Pharmacist Compliance of Discharge Process

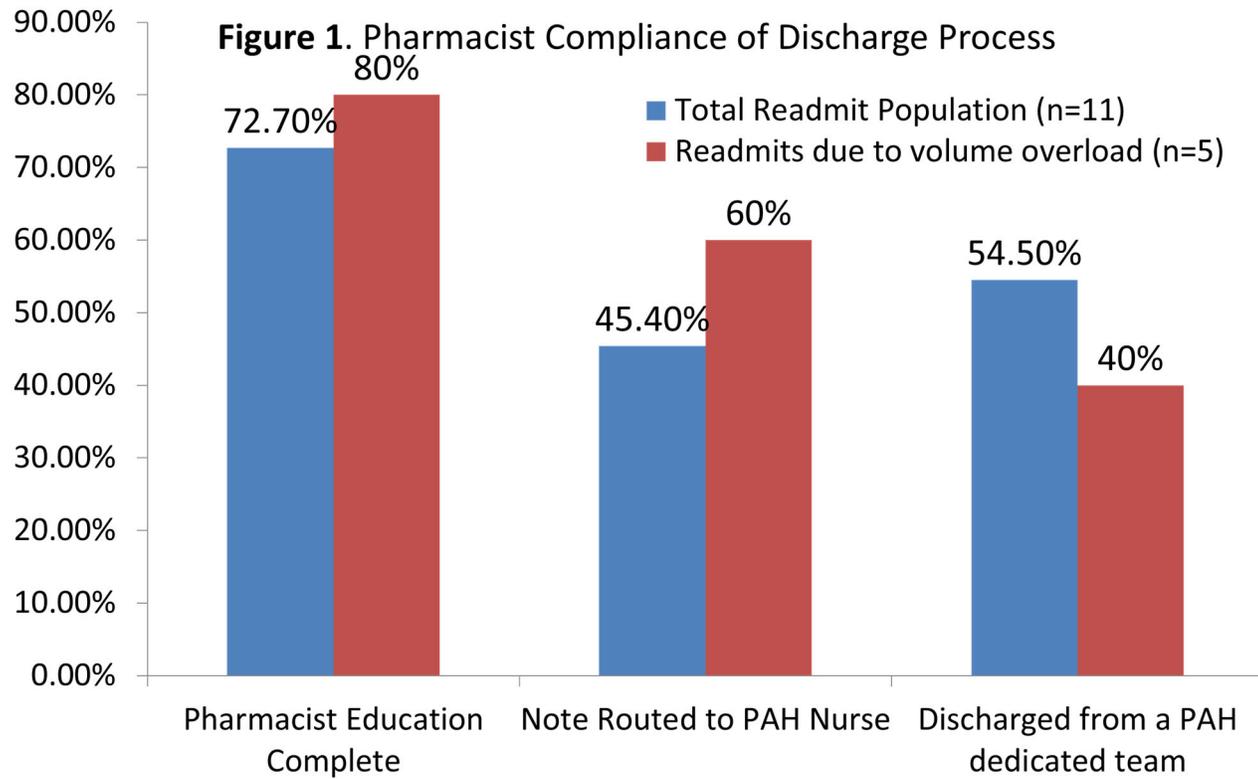


Figure 4. UHC All-Cause 30 Day Readmission

