



Improving Medication Adherence in Pulmonary Arterial Hypertension: An Integrated Specialty Pharmacy Approach

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Background

- Phosphodiesterase-5 inhibitors (PDE5I) have shown improvement in outcomes for patients with pulmonary arterial hypertension (PAH).¹
- Adherence to PDE5I is reportedly low:

2,143 pharmacy benefit claims:
Revatio®: **44.3% PDC**
Adcirca®: **60.7%PDC**²
PDC= proportion of days covered

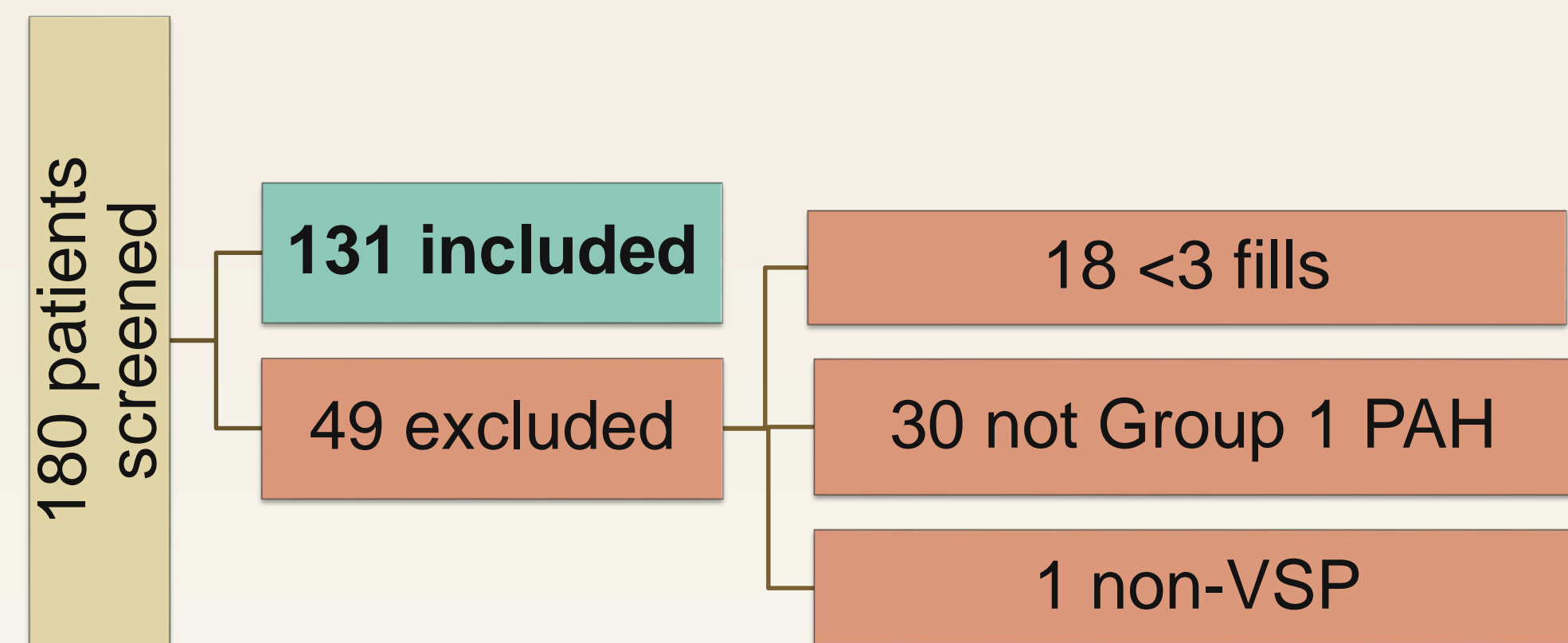
Self-reported adherence to PDE5I in the UK found that **47.9% reported "high adherence"**³
UK=United Kingdom

Previous reasons for non-adherence to PDE5I:
cost, age, dose frequency

- Vanderbilt Specialty Pharmacists provide integrated clinical pharmacy services for patients in the Vanderbilt University Medical Center PAH clinic.

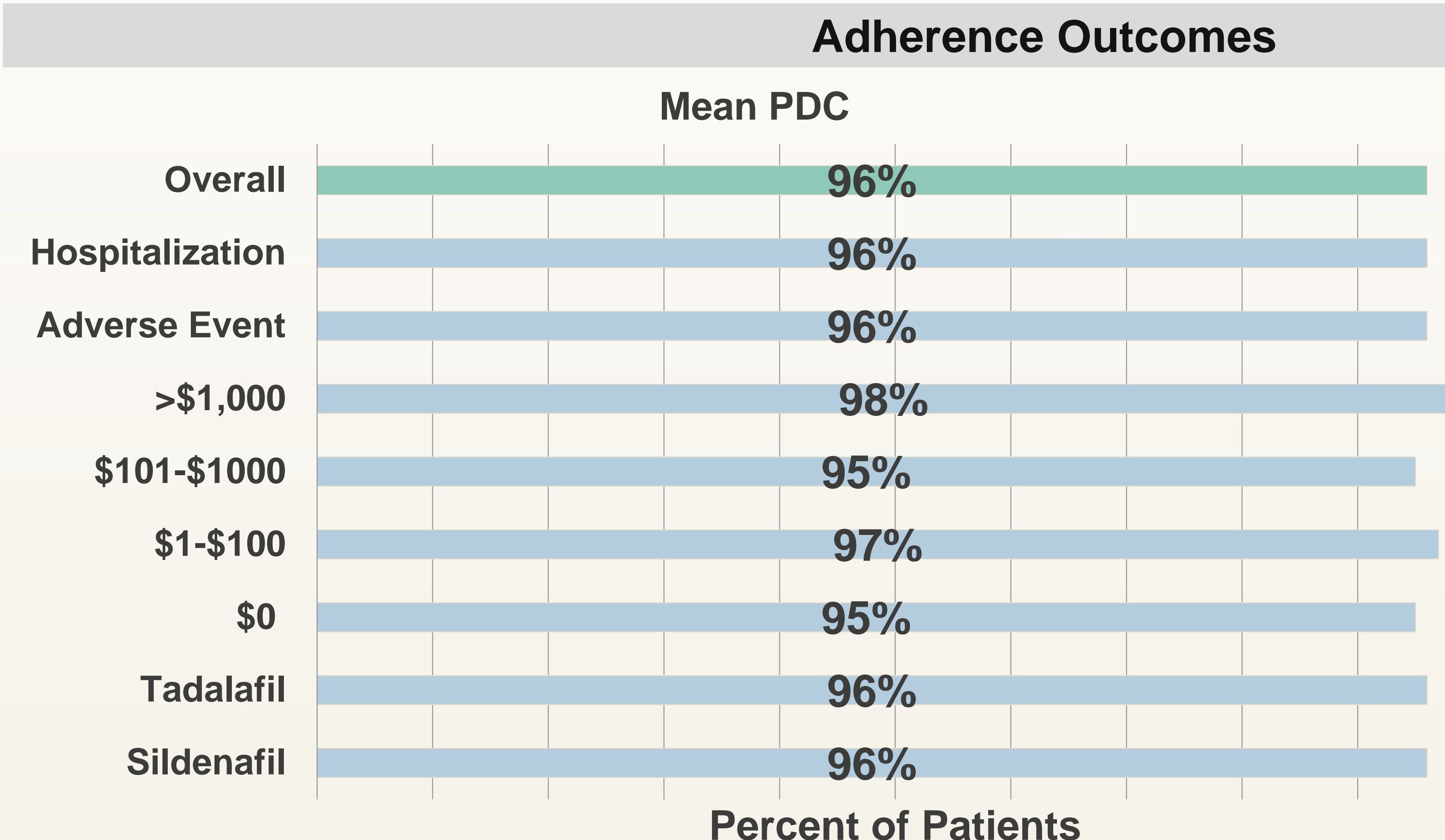
Methods

- Single-center retrospective cohort study of patients receiving care at the VUMC outpatient pulmonary clinic from January 1, 2014 through December 31, 2016.



Baseline Demographics	Number (%) n=131
Age (mean ±SD)	53 ± 13
Race	
Caucasian	103 (78)
African American	28 (21)
Gender (Female)	93 (70)
Male	39 (30)
Female	93 (70)
PDE5I Therapy	
Sildenafil	44 (33)
Tadalafil	86 (65)
Switch in therapy	1 (<1)
Insurance Type	
Commercial	38 (29)
Medicare	76 (58)
Medicaid	10 (8)
Medicare/Medicaid	6 (5)

Results

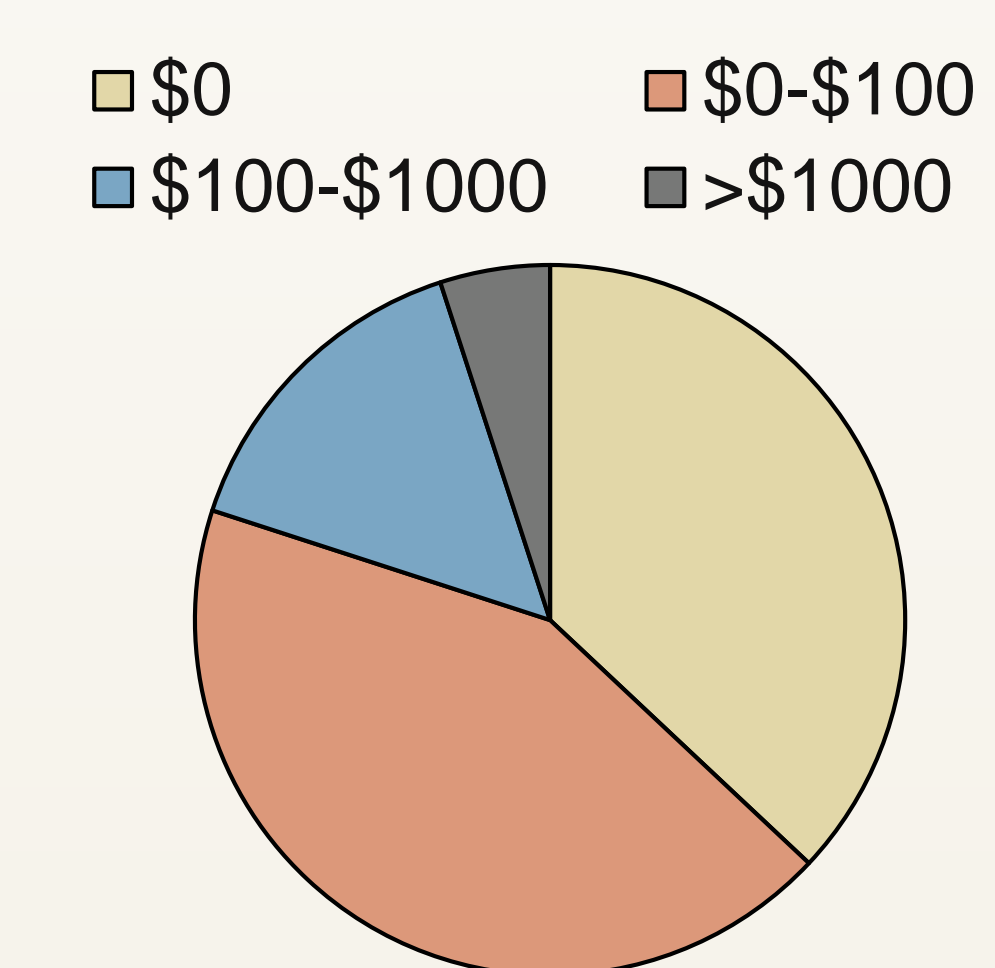


Overall adherence 96%
93% of patients achieved ≥80% PDC

Achieving ≥80% adherence was NOT impacted by age, race, dose frequency, adverse events, hospitalizations, cost, or use of financial assistance.

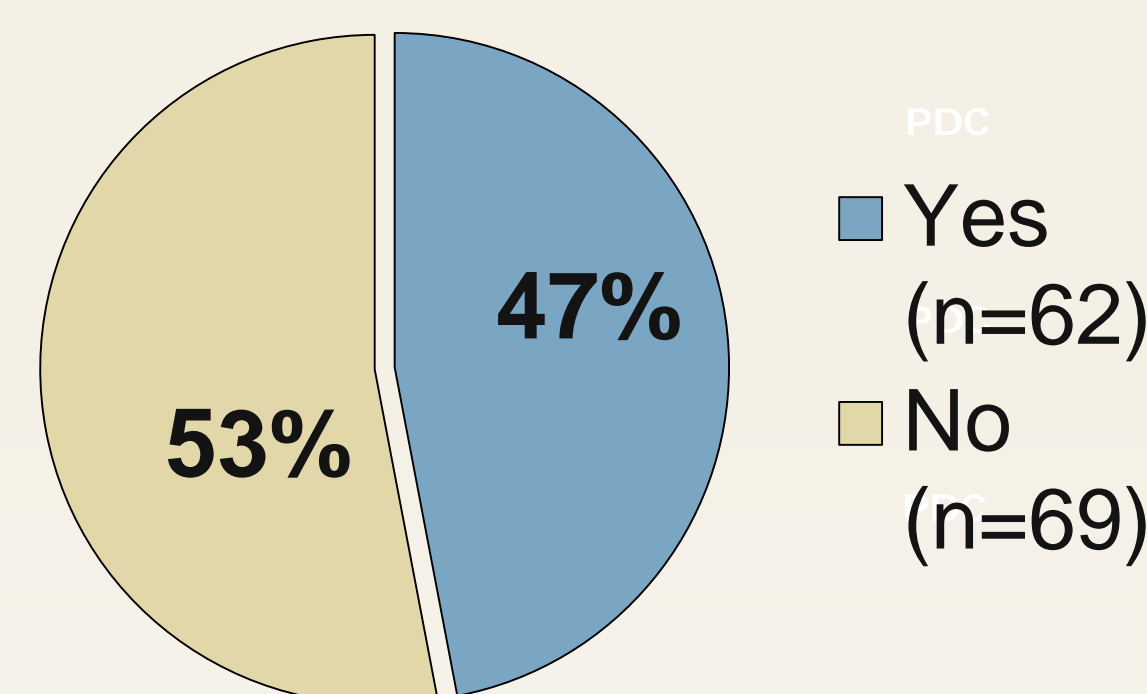
Financial Outcomes

Median out of pocket cost over 24 months: \$14 (IQR \$0-\$62)



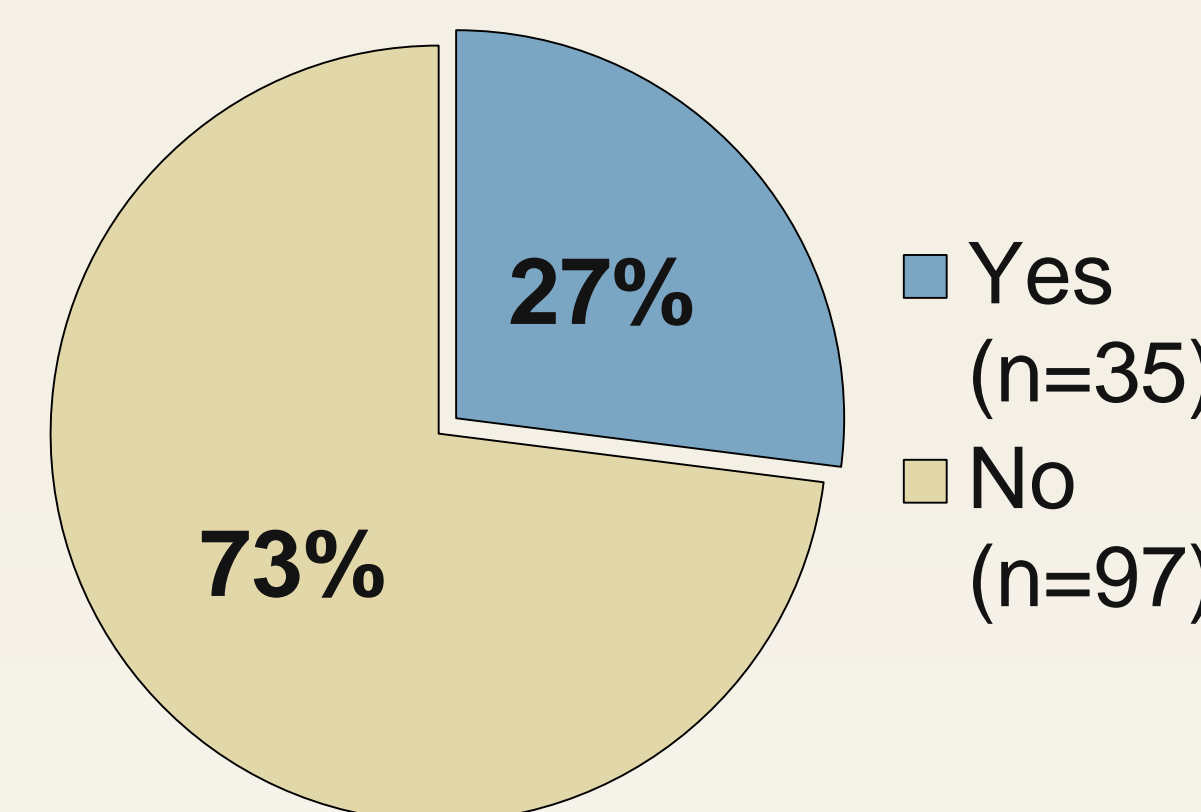
Clinical Outcomes

Adverse Events (AE)



AE	N (% of 63 AEs)
Headache	31 (49%)
Reflux	15 (24%)
Diarrhea	14 (22%)
Leg Pain	8 (13%)
Nausea	6 (10%)
Fatigue	6 (10%)
Vision Changes	4 (6%)

Hospitalizations



Chief Complaint	N (% of 35 hospitalizations)
Dyspnea/SOB	19 (54%)
Chest Pain	10 (24%)
Hickman catheter complication	8 (23%)
LE edema	11(31%)
Hypervolemia	6 (17%)
SOB=shortness of breath LE= lower extremity	

Conclusions

- The VSP model achieved optimal PDE5I despite pill burden, frequent adverse events, relatively high hospitalization rate, and varying total out of pocket costs of therapy.
- Integrated specialty pharmacists play an important role in helping patients maintain medication adherence.

References

- Talchman, D.B., et al., Pharmacologic Therapy for Pulmonary Arterial Hypertension in Adults CHEST Guideline and Expert Panel Report. Chest, 2014. 146(2): p. 449-475.
- Waxman, A., et al., Factors associated with adherence to phosphodiesterase type 5 inhibitors for the treatment of pulmonary arterial hypertension. J Med Econ, 2013. 16(2): p. 298-306.
- Grady D, Weiss M, Hernandez-Sanchez J, Pepke-Zaba J. Medication and patient factors associated with adherence to pulmonary hypertension targeted therapies. Pulm Circ. 2018;8(1):2045893217743616.