VANDERBILT HEALTH | Specialty Pharmacy

Multisite Analysis of Health System Specialty Pharmacy Actions that Lead to Cost Avoidance

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Purpose

This study evaluated direct cost avoidance from pharmacist interventions that identify inappropriate (ineffective or unsafe) medication use and result in medication discontinuation, dose adjustment, or switch.

Aims

1. Quantify pharmacist interventions resulting in a discontinuation, switch, or dose change
2. Estimate the probability of trajectory change (pTC) for each intervention
3. Approximate direct cost avoidance resulting from pharmacist interventions

Methods

Population

Patients from 14 Health System Specialty Pharmacies (HSSPs) prescribed specialty medications with ≥1 fill before a PharmD intervention that led to a medication outcome of interest during the 6-month study period

pTC Scoring

Likelihood the outcome was due to PharmD:

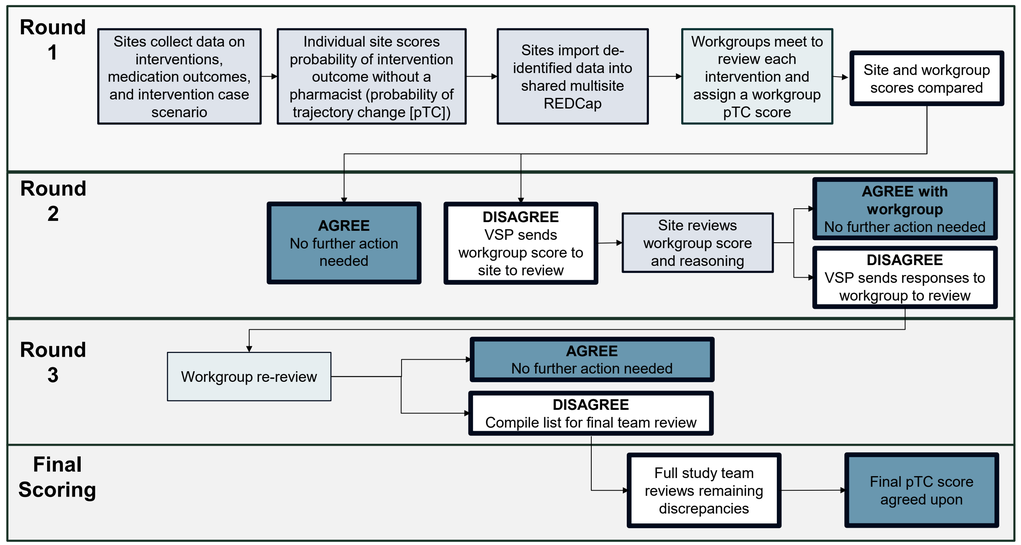
0: Not at all
0.25: Possibly
0.5: Likely
0.75: Very likely
1: Absolutely

Calculating cost avoidance $

Equation:
- 1 fill of medication costs x pTC

Reported as:
- Average wholesale price (AWP)
- Wholesale acquisition cost (WAC)

Figure 1. Probability of Trajectory Change (pTC) Scoring Process



Abbreviations: HSSP = health system specialty pharmacy; PharmD = pharmacist; pTC = probability of trajectory change; VSP: Vanderbilt Specialty Pharmacy; AWP: average wholesale price; WAC: wholesale acquisition price

HIGHLIGHTS

- Pharmacists avoided over $3.6 million in direct costs through interventions in just 6 months.
- HSSP pharmacists frequently perform clinical interventions that promote medication safety and effectiveness and non-clinical interventions that ensure medication access.

Results

Figure 2. Medication Outcomes

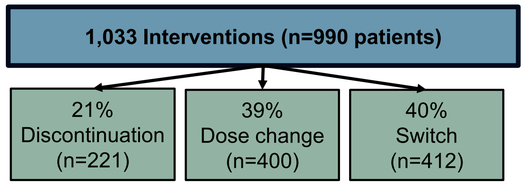


Figure 3. Costs Avoided

Interventions with pTC >0 (n= 686)

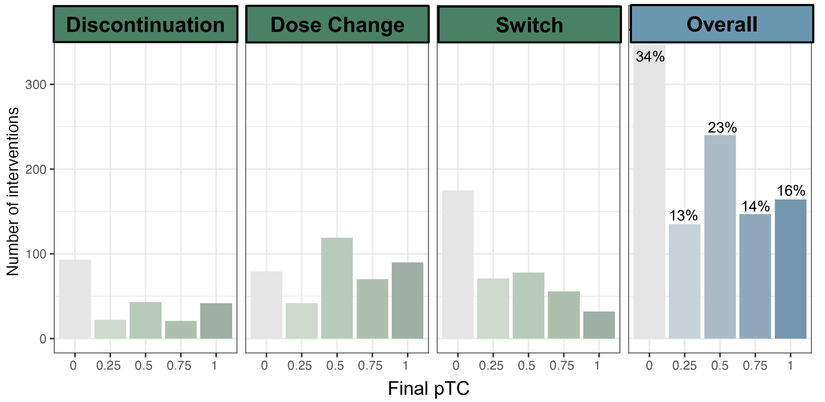
Total Estimated Costs Avoided

$3,669,414 (AWP) ■ $2,780,580 (WAC)

Median Costs Avoided Per Intervention

$2,699 (AWP) ■ $1,586 (WAC)

Figure 4. Final pTC Scoring by Medication Outcome



A third of all interventions had a final pTC = 0

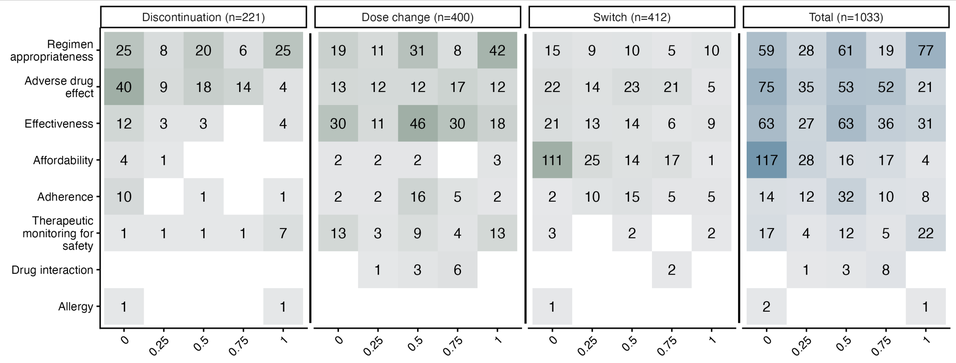
Of the 3 medication outcomes, dose changes most commonly scored pTC = 1

Table 1. Total Cost Avoidance

Top 5 Medications by Costs Avoided		
Medication	**Interventions (n)**	**Total Costs Avoided**
Deutetrabenazine	38	$190,646
Upadacitinib	17	$150,601
Ustekinumab	10	$146,923
Venetoclax	13	$133,578
Cabozantinib	5	$121,906
Top 5 Clinical Areas by Costs Avoided		
Clinic	**Interventions (n)**	**Total Costs Avoided**
Oncology	131	$1,349,287
Non-MS neurology	127	$381,921
Hematology	27	$320,517
Rheumatology	104	$274,613
Dermatology	66	$270,099

Presented by AWP only; MS: multiple sclerosis

Figure 5. pTC Scoring by Intervention Reason



- The most common intervention reasons were: regimen appropriateness (24%), adverse drug effects (23%), medication effectiveness (21%), and medication affordability (18%)
- Adherence and regimen appropriateness interventions commonly scored pTC >0 (82% and 76%)
- Therapeutic monitoring for safety and regimen appropriateness commonly scored pTC= 0.75/1 (45% and 40%)