



# Patients Who Receive Care from Community-based Pharmacies have Higher Adherence to Immunosuppressant Medications and Lower Inpatient Hospitalization Costs Compared to a National Baseline of Commercially Insured Patients

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## BACKGROUND

- Immunosuppressive medication treatment regimens are complex and therefore likely to present adherence challenges for patients relative to other medication classes.
- Previous research has shown that increased adherence to immunosuppressants lowers the costs of hospitalizations as well length of stay in immunosuppressant patients.<sup>1</sup>
- However, few studies have examined the effect of pharmacy type on hospitalizations and length of stay.
- Understanding the linkage between type of pharmacy and adherence is therefore critical to understanding how to limit negative health outcomes for patients on immunosuppressive treatment regimens.

## OBJECTIVES

- This study aimed to examine the difference in adherence in patients who utilize community-based specialty pharmacies (CBSP) compared to traditional retail pharmacies.
- A secondary goal of this study was to estimate the effect of CBSP utilization relative to traditional pharmacies by way of extrapolating cost and length of stay estimates to a larger number of patients.s.

## METHODS

- National baseline data for traditional retail pharmacy claims were obtained from 2019 MarketScan Commercial Claims and Encounters Database. At the time of analysis, 2019 was the most recent available year of data.
- CBSP data were obtained from a national pharmacy chain 2021. Although 2020 data were available, we chose 2021 as a comparison to lessen the effect of the covid-19 pandemic on the results.
- The CBSP data were restricted to patients with commercial insurance to make the data comparable to MarketScan data.
- Adherence in both datasets was defined by proportion of days covered (PDC) using Pharmacy Quality Alliance (PQA)-like<sup>2</sup> specifications.

- At least 2 fills for any immunosuppressant
- At least 56 days' supply of any immunosuppressant
- More than 150 days between the first and last fill for any medication.
- Patient demographic characteristics and mean PDC were examined and compared for each group.
- A patient was considered adherent if their PDC was at least 80% and differences in adherence rates between groups were tested (PDC80).
- This categorical adherence rate was then used to estimate potential reductions in inpatient costs and LOS of community-based specialty pharmacy (CBSP) patients relative to traditional retail patients using estimates from previous research<sup>1</sup>.
- Cost savings were extrapolated to 1,000 patients with at least one inpatient hospital stay to show potential savings to payers.
- Differences in continuous variables were tested via t-test and differences between categorical variables were tested via Pearson's Chi-Square.

## RESULTS

- Descriptive statistics for patient characteristics of the national baseline dataset, the CBSP dataset and inferential statistics comparing them statistically are presented in **Table 1**.
- As seen in **Table 1**, there was a statistical difference in age of the patients, with CBSP patients being slightly older than traditional retail patients.
- Mean PDC was higher in the CBSP patients compared to the national baseline (**Table 1**).
- There was no statistical difference in the proportions of men and women in the two groups

**Table 1: National Baseline and CBSP Patient Characteristics**

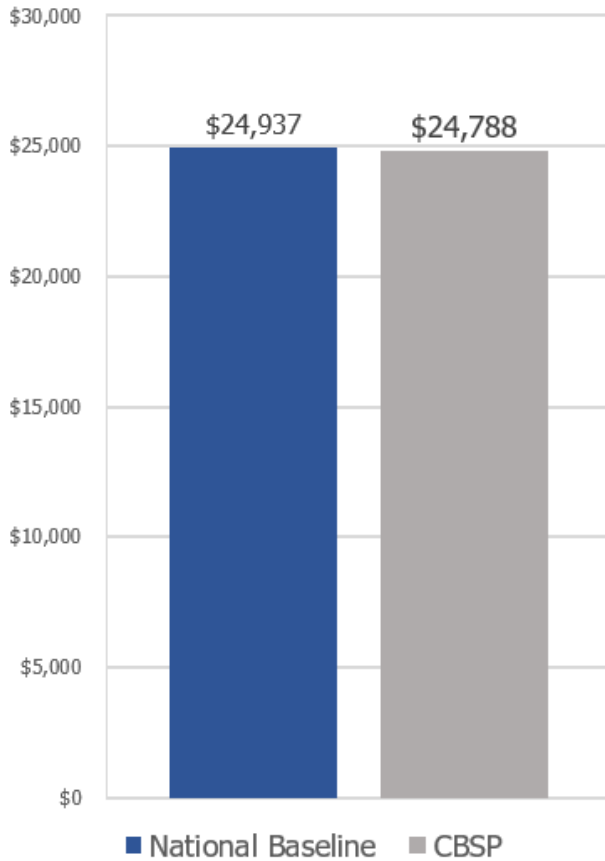
	National Baseline (n = 26,440*)		CBSP (n = 40,804*)		p
	Mean	SD	Mean	SD	
Age in Years	47.73	12.1	48.08	12.2	.013
PDC	73.82	29.74	77.09	24.43	<.001
% Female (n, %)	13,903	52.6	21,573	52.9	.467

*\*Descriptive statistics are provided for patients with complete information.*

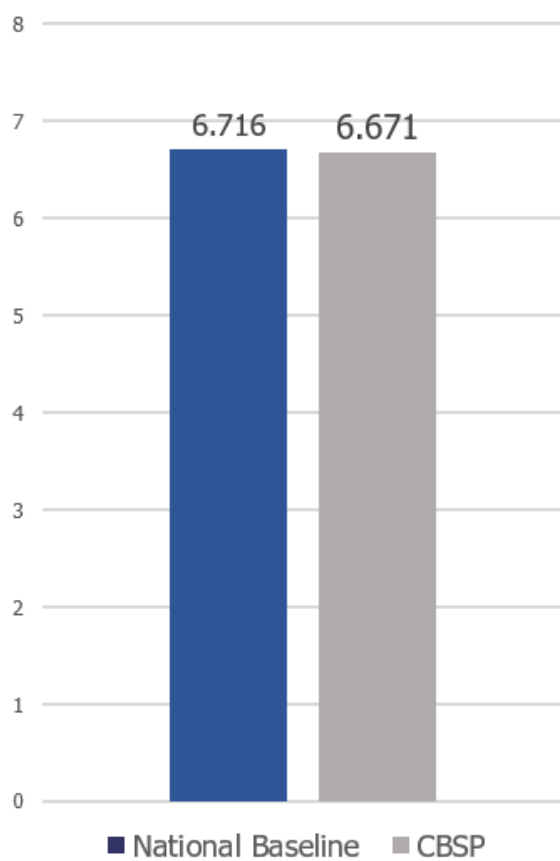
- When adherence was dichotomized, a larger proportion of CBSP patients (PDC80 = 59.8%; 95% CI: 59.4% - 60.3%) were adherent than in the national baseline sample (PDC80 = 58.0%; 95% CI: 57.4% - 58.6%) The difference was statistically significant (p < .01)
- The differences in estimated inpatient costs per patient are presented in **Figure 1**.

- As can be seen in the figure, the estimated annual cost of a single patient utilizing CBSP are lower than the national baseline.
- **Figure 2**, shows a similar pattern in average length of stay with CBSP patients having a shorter average length of stay than the national baseline.

**Figure 1: Estimated Annual Inpatient Costs Per Patient**



**Figure 2: Estimated Length of Stay Per Patient (Days)**



- The incremental savings to payers if patients utilized a CBSP were estimated to be \$149,040 (\$66,240 - \$240,120) per 1,000 immunosuppressant patients with at least 1 inpatient hospital stay.

Estimated savings per 1,000 patients with at least 1 inpatient admission

**\$149,040**

- The shorter LOS for adherent patients was found to potentially save 0.045 days per hospital admission or 45 days per 1,000 hospital immunosuppressant patients with at least 1 inpatient hospital stay.

# 45 days

Estimated reduction in hospitalized days per 1,000 admissions.

## CONCLUSIONS

- Even though the difference was small, CBSP has a significantly higher adherence than traditional retail pharmacies.
- When this difference is applied to an existing model and extrapolated across many patients, the potential savings to a large payer can be pronounced in both inpatient costs and LOS.
- It may be possible to achieve even larger savings through economies of scale as more patients use CBSP.

## LIMITATIONS

- The CBSP population encompassed patients from only one retail chain, as a result, estimates for adherence for this group may be lower than those from the national baseline as patients may have filled claims at other pharmacies.
- The baseline and study populations were from different calendar years, so there may be other factors that were not controlled in the study.
- The hospitalization rates of patients filling immunosuppressant medications at CBSP is unknown.
- Future studies could examine populations with known hospitalization rates from multiple retail chains.

### References:

1. Refeld R, Witt EA, Hira N. Cost of prescription non-adherence among immunosuppressant patients. Poster presented at: International Society for Pharmacoeconomics and Outcomes Research 2022 Conference (ISPOR 2022, virtual); May 15-18, 2022; Washington, DC.
2. 2019 PQA Measurement Manual. Pharmacy Quality Alliance. Alexandria, VA; 2019.

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