

CHARACTERISTICS, HEALTHCARE SERVICE USE, AND HEALTHCARE EXPENDITURES OF PATIENTS WITH SCHIZOPHRENIA SWITCHING FROM ORAL TO LONG-ACTING INJECTABLE ANTIPSYCHOTICS

Vicki K. Wing¹, Allison Perry¹, Brenna L. Brady¹

¹IBM Watson Health, Life Sciences and Outcomes Research, Cambridge, MA, USA

Background

- Poor adherence has been observed in some patients with schizophrenia receiving oral antipsychotics.^{1,2}
 - Prior research has shown nonadherence to be associated with higher hospitalization risk, substance abuse, and violent behaviors.²
- Long-acting antipsychotics (LAIs) have several advantages compared to oral antipsychotics, including removal of need for daily administration, adherence transparency, and regular contact between the patient and mental healthcare providers, that can help to improve treatment adherence.^{3,4}
- As a result, LAIs may be more effective than oral antipsychotics in reducing the risk of relapse and rehospitalization among patients with schizophrenia.^{1,5,6}

Objective

- This study examined clinical characteristics, healthcare service use, and healthcare expenditures in patients with schizophrenia switching to LAI antipsychotics from oral antipsychotics.

Methods

Study Design

- Adult patients with a diagnosis of schizophrenia (ICD-9-CM: 295.xx or ICD-10-CM: F20.xx) who switched from an oral antipsychotic to a LAI were evaluated using administrative claims data from IBM® MarketScan® Commercial and Medicare Supplemental Databases accessed using Treatment Pathways 4.0, an online analytic platform (*Table 1*).
- To ensure patients had oral antipsychotic use prior to LAI use, patients were required to have ≥56 days’ supply of oral antipsychotics during the 6-months prior to the index date (first LAI claim).
- Demographics were assessed at index, while baseline psychiatric comorbidities, oral antipsychotic use, and concomitant medication use, were measured over the 6-month pre-index period.
- All-cause and schizophrenia-related healthcare service use and costs (calculated per person per month [PPPM]) were measured over the 6-month pre- and 3-month post-index periods.
 - Claims with an ICD-9-CM or ICD-10-CM diagnosis code for schizophrenia or an NDC or HCPCS code for an antipsychotic medication were categorized as schizophrenia-related.
- PPPM healthcare service use and cost outcomes were compared between the pre- and post-periods using Student’s t-tests.

Table 1. Selection Criteria and Patient Attrition		
Criteria	N	%
≥ 1 claim for a LAI between January 1, 2013 and October 31, 2018 (first claim served as the index date)	11,472	100.0%
AND continuous enrollment with medical, pharmacy, and mental health substance abuse coverage in the 6-months prior to through 3-months following index	6,764	66.2%
AND ≥18 years of age on index	6,504	56.7%
AND ≥ 1 inpatient or ≥ 2 outpatient claims with a diagnosis of schizophrenia in the 6-months prior to index	1,779	15.5%
AND ≥56 days’ supply of oral antipsychotics the 6-months prior to index	1,001	8.7%

Results

Demographics and Clinical Characteristics

- A total of 1,001 patients with schizophrenia met the patient selection criteria and were included in the sample.
- The majority (63%) of patients were male, and the sample had a mean age of 37±18 years.
- Common comorbid conditions included mood, schizoaffective, alcohol/drug use, and anxiety disorders measured from diagnostic codes and filled medications, as well as metabolic disorders as seen by patient use of antihyperlipidemic and antidiabetic medications (*Figure 1, Table 2*).

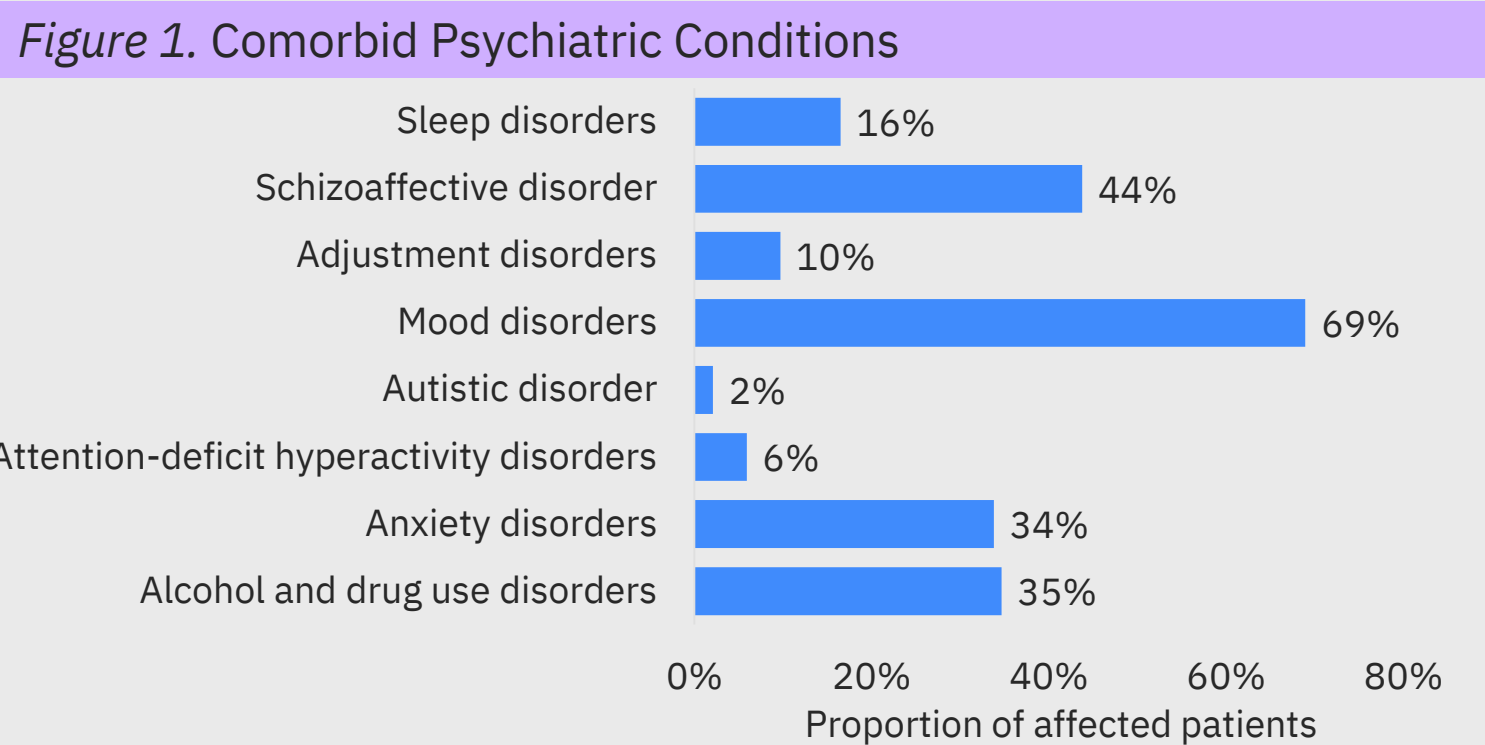


Table 2. Baseline Concomitant Medication Use	
Medication Class	N (%)
Antidepressants	525 (52%)
Muscle Firing and Nerve Conduction Drugs	468 (47%)
Anticonvulsants	390 (39%)
Benzodiazepines	358 (36%)
Hypertension-related Drugs	255 (25%)
Anxiolytic/Sedative/Hypnotics	247 (25%)
Antihyperlipidemic Drugs	137 (14%)
Gastrointestinal Drugs	106 (11%)
Antidiabetic Agents	92 (9%)

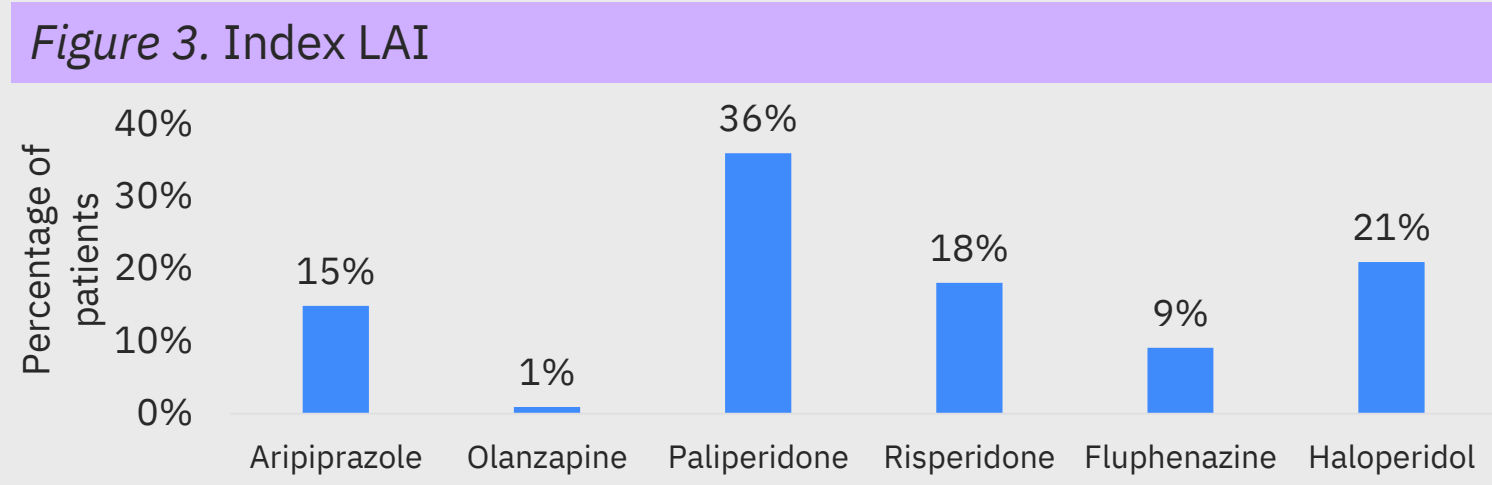
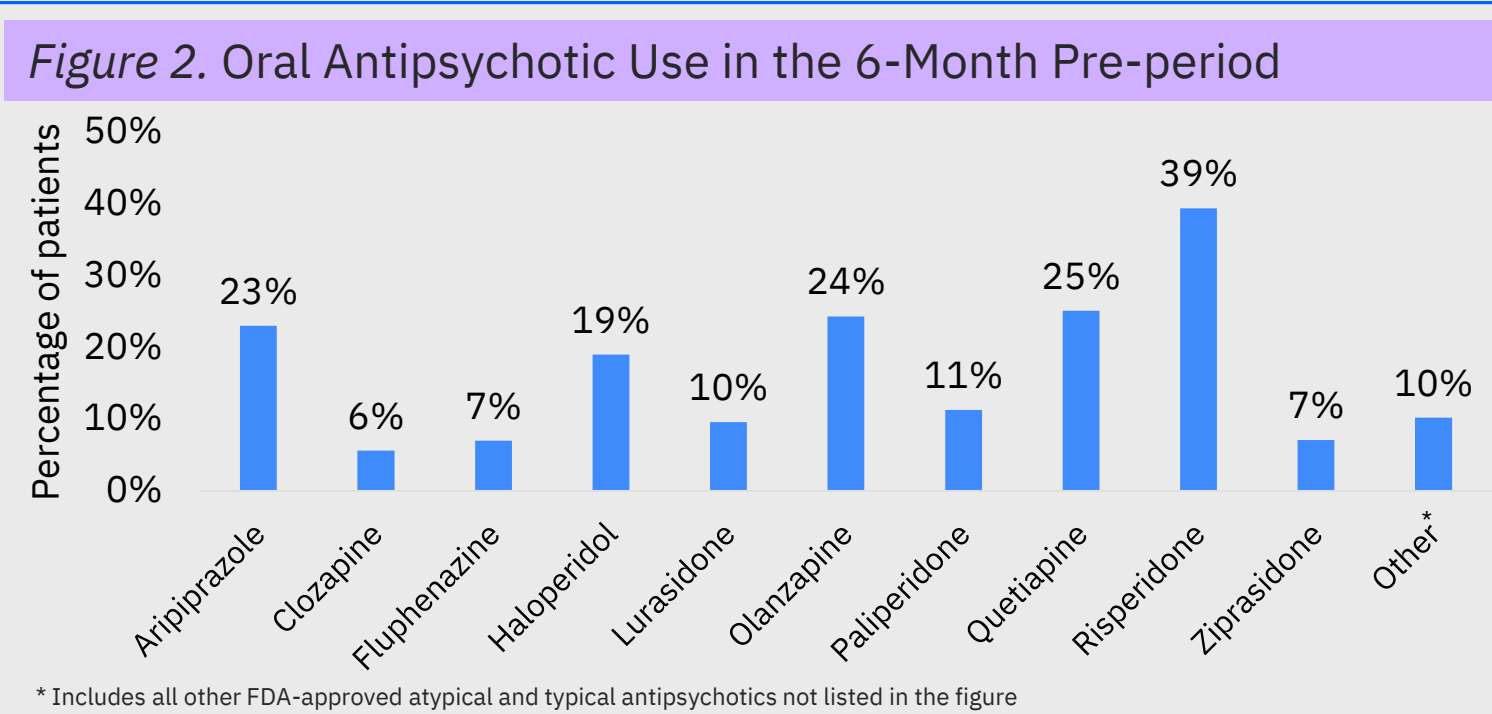
*Medication classes were defined using IBM Micromedex RED BOOK®

Antipsychotic Use

- During the 6-month pre-period, risperidone (39%), quetiapine (25%), olanzapine (24%), and aripiprazole (23%) were the most used oral antipsychotics (*Figure 2*).
 - Use of multiple antipsychotics was relatively common with 19% of patients using ≥3 different oral antipsychotics in the pre-period.
- After LAI initiation, the most used LAI antipsychotics were paliperidone (36%), haloperidol (21%), risperidone (18%), and aripiprazole (15%) (*Figure 3*).
- Approximately 52% of patients initiating a LAI had ≥1 fill for an oral antipsychotic of the same ingredient in the pre-period.
 - The most common instances were for risperidone and aripiprazole, where 82% and 77% of LAI users, respectively, had evidence of that oral antipsychotic pre-period.

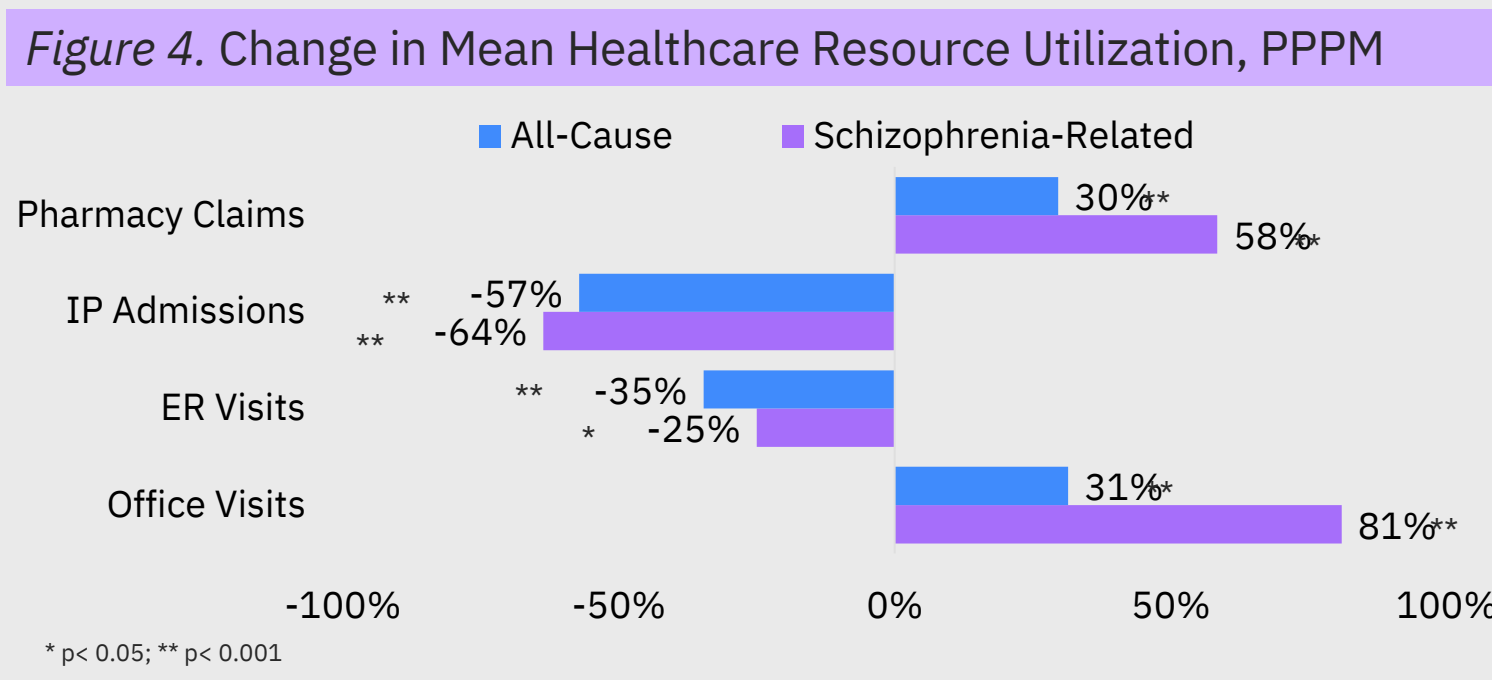
Healthcare Resource Utilization

- The mean PPPM number of all-cause inpatient (IP) and emergency room (ER) visits decreased by 57% and 35% respectively from the pre- to the post-period (*Figure 4*).
- Increases were observed in office visits (31%) and pharmacy claims (30%) following switch to LAI, p<0.001 (*Figure 4*).



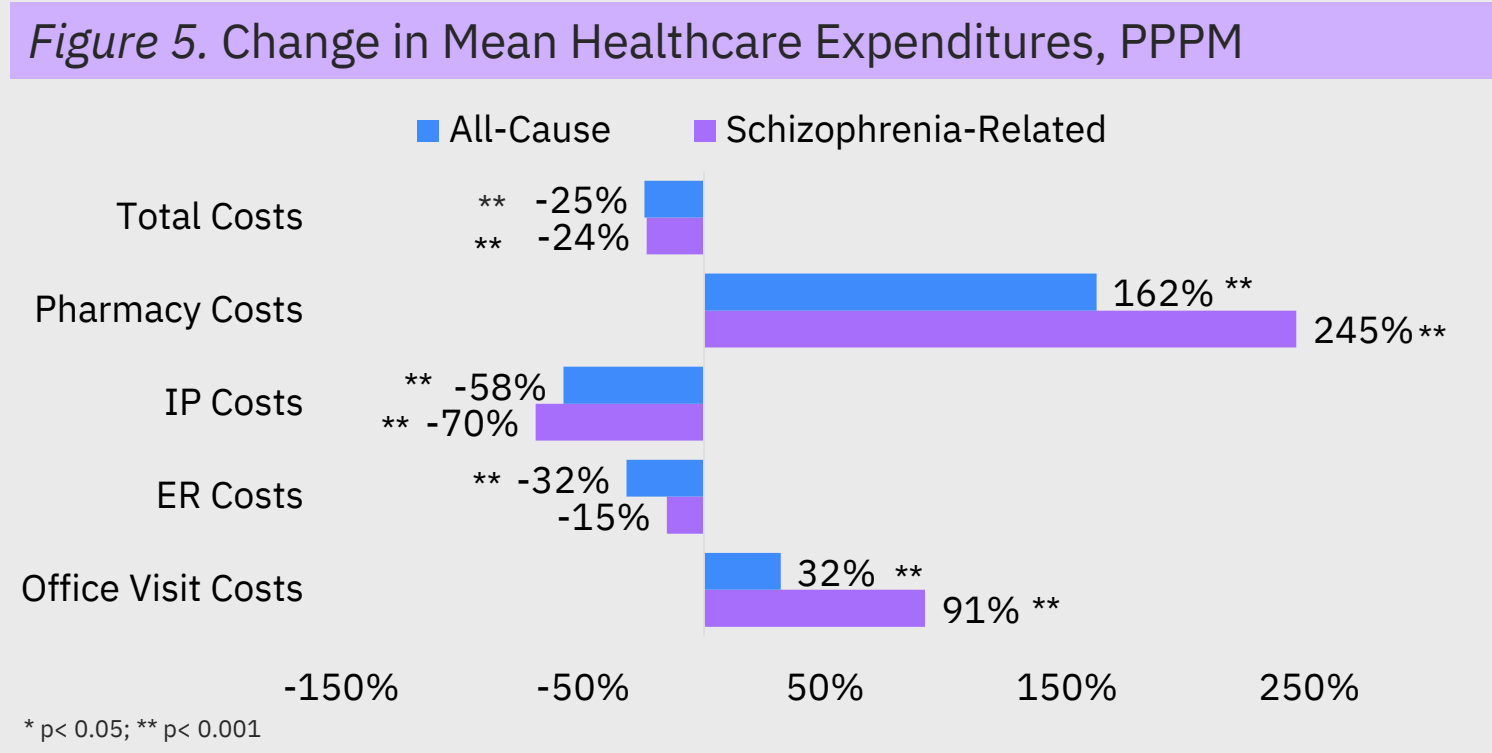
Healthcare Resource Utilization

- Similarly, the PPPM number of schizophrenia-related visits decreased in the IP (64%) and ER (25%) settings and increased in the office (81%) and outpatient pharmacy (58%) settings, p<0.05.



Healthcare Costs

- Following the switch to LAI, total mean all-cause PPPM costs decreased (\$4,726±\$5,161 to \$3,567±\$5,280, p<0.001).
 - Reduced costs were primarily driven by decreased IP and ER costs (\$3,164±\$4,396 to \$1,327±\$4,291 and \$308±\$771 to \$210±\$823, respectively), p<0.001 (*Figure 5*).
 - Over the same period, all-cause office and outpatient pharmacy costs increased (\$64±\$85 to \$84±\$155 and \$428±\$812 to \$1,122±\$1,101, respectively), p<0.001.
- Similar trends were observed for schizophrenia-related costs, which decreased from \$2,894±\$3,933 to \$2,210±\$3,889 following switch to LAI
 - Again IP and ER costs decreased, while notable increases were observed in outpatient pharmacy and office costs, p<0.001.



Limitations

- As the study was limited to individuals with commercial health coverage, results of this study may not be generalizable to patients with government-sponsored insurance programs or without insurance coverage.
- Data coding limitations and data entry errors are possible when relying on claims data for clinical and pharmacy detail.
- Oral antipsychotic use was based on filled prescriptions. Patients were assumed to take the medications, but we were not able to confirm if patients took them as directed.

Conclusions

- Within this sample, switching from an oral antipsychotic to a LAI was associated with significant decreases in all-cause and schizophrenia related costs.
 - The cost reduction was primary driven by reduced utilization of IP and ER services, suggesting LAIs may reduce the risk of relapse and rehospitalization.
 - The cost savings observed in the IP and ER settings were large enough to offset increased use of outpatient services and pharmacy prescriptions.
- These findings suggest that use of LAIs may be associated with improved symptom management, likely stemming from increased antipsychotic adherence and more frequent provider interaction.
- Although LAI formulations may not be appropriate for all patients, this study suggests they can effectively manage disease in particular cases, helping to reduce relapse and hospitalization while containing costs.

References

- Correll CU et al., (2016) J Clin Psychiatry 77, 1-24
- Ascher-Svanum H et al., (2006) J Clin Psychiatry 67, 453-460
- Brissos S et al., (2014) Ther Adv Psychopharmacol 4, 198-219
- Marcus SC et al., (2015) J Manag Care Spec Pharm 21, 754-768
- Oliveras JM et al., (2011) Neuropsychiatry 1, 275-289.
- Tiihonen J et al., (2017) JAMA Psychiatry 74, 686-693

Disclosure

Allison Perry, Vicki Wing, and Brenna Brady are employees of IBM Watson Health. This study was funded by IBM Watson Health.