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An Economic Model Assessing Costs, Relapses, and Antipsychotic Adherence of Switching Medicaid Beneficiaries With Schizophrenia From Oral Antipsychotics to Once-Monthly, Once-Every-Three-Months, and Once-Every-Six-Months Paliperidone Palmitate

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Background

- Schizophrenia is associated with substantial clinical and economic burden in the United States (US), with an estimated prevalence ranging from 1.46% to 4.23% among Medicaid beneficiaries across 7 states and total excess costs for patients with schizophrenia, relative to those without, of more than $340 billion in the US in 2019[1-3]
- The large clinical and economic burden of schizophrenia highlights the importance of long-term compliance to antipsychotic (AP) treatment to improve symptoms and reduce the likelihood of relapse[4]
- Long-acting injectable (LAI) APs, including paliperidone palmitate, have been shown to be associated with improved AP adherence and clinical outcomes compared to oral APs (OAPs), while remaining cost-neutral[5-8]
- In an evolving LAI treatment space with emergent real-world data, there is a need to better understand the impact of paliperidone palmitate treatment pathways on economic and clinical outcomes among a population of Medicaid beneficiaries with schizophrenia

Objective

- To evaluate the plan-level impact on healthcare costs, relapse rates, readmission rates, and average AP adherence of switching Medicaid beneficiaries with schizophrenia from OAPs to once-monthly paliperidone palmitate (PP1M) alone, and with subsequent transitions to once-every-three-months (PP3M) and once-every-six-months paliperidone palmitate (PP6M)

Methods

Model framework/structure

- A Markov model with twelve 3-month cycles over a 36-month time frame was developed from a Medicaid payer perspective (**Figure 1**)
- Three cohorts of adults with schizophrenia were included: those treated with once- or twice-daily OAPs, those switching to PP1M only, and those switching to PP1M with subsequent on-label transitions to PP3M and PP6M
- For the switching cohorts, 20% of the population was switched to PP1M, based on real-world evidence of LAI utilization rates among Medicaid beneficiaries[9]
- The model evaluated and compared total plan-level healthcare costs (based on costs of AP treatment and relapse, reported in 2025 US dollars [USD]), relapse rates, readmission rates, and average AP adherence among the three cohorts of patients

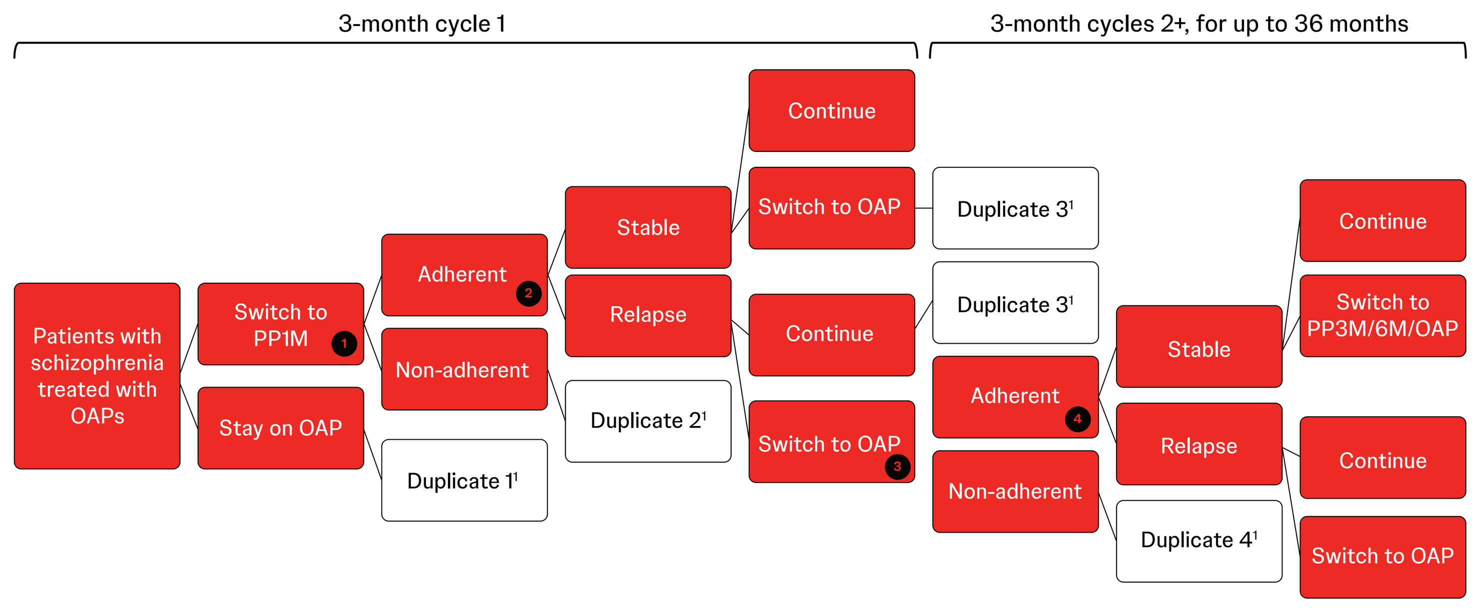
Model assumptions

- At each 3-month cycle, patients may or may not be adherent to AP treatment, may or may not experience a relapse, and could continue receiving the same AP treatment or switch treatment
- The risk of relapse differed according to treatment and adherence status, and medication switch rates differed according to relapse and adherence status; patients could have experienced multiple relapses and treatment switches (up to 12) over the 36-month model time horizon
- Patients transitioning from PP1M to PP3M/PP6M had to do so on-label (i.e., after two 3-month cycles of PP1M, at the correct corresponding dose strength, with no evidence of relapse during the current cycle)[10,11]
- Patients on PP3M/PP6M could switch to another paliperidone palmitate formulation, or an OAP, while patients on an OAP could only switch to another OAP
- Patients switching to PP1M were assumed to be part of the PP1M treatment arm regardless of whether they switched to an OAP over the course of the model

Model inputs

- All model inputs including population inputs, rates of relapse, readmission, adherence, and treatment switches, as well as costs of treatment and relapse, were literature-based[1,9,12-18]
- Considering both statutory and inflation discounts, a 70% discount was used for PP1M and PP3M treatment costs; for PP6M, given that it is a newer product, a 60% discount was applied, in line with prior literature[12,19]

Figure 1: Model structure


3-month cycle 1
3-month cycles 2+, for up to 36 months
Patients with schizophrenia treated with OAPs
Switch to PP1M
1
Stay on OAP
Adherent
2
Non-adherent
Duplicate 1¹
Stable
Relapse
Duplicate 2¹
Continue
Switch to OAP
Continue
Switch to OAP
3
Duplicate 3¹
Duplicate 3¹
Adherent
4
Non-adherent
Stable
Relapse
Duplicate 4¹
Continue
Switch to PP3M/6M/OAP
Continue
Switch to OAP

OAP = oral antipsychotic; PP1M = once-monthly paliperidone palmitate; PP3M = once-every-three-months paliperidone palmitate; PP6M = once-every-six-months paliperidone palmitate.
[1]At this point the branch is being duplicated from the corresponding number. Duplication does not include any switches to PP3M and PP6M from the OAP cohort.

Results

- In a hypothetical health plan of 1 million Medicaid beneficiaries, an estimated 13,419 adult members with schizophrenia treated with OAPs incurred plan-level costs of $1,253.5 million, based on 33,671 relapses, 7,778 readmissions, and average AP adherence of 69.5% over the 36-month model time horizon (**Table 1**)

Table 1: Plan-level costs, relapses, readmissions, and average AP adherence associated with switching 20% of Medicaid beneficiaries with schizophrenia from OAPs to PP1M, with subsequent transitions to PP3M and PP6M

	Patients on any OAPs [A]	Patients switching to PP1M only [B]	Difference [B – A]	Patients switching to PP1M, PP3M, and PP6M [C]	Difference [C – A]
Plan-level costs (2025 USD)					
Year 1	$417,824,890	$379,828,955	–$37,995,934	$378,754,322	–$39,070,567
Net cost per patient switched per year	-	-	–$14,158	-	–$14,558
Year 2	$417,824,890	$381,940,519	–$35,884,370	$377,788,663	–$40,036,226
Net cost per patient switched per year	-	-	–$13,371	-	–$14,918
Year 3	$417,824,890	$385,536,042	–$32,288,848	$380,857,921	–$36,966,969
Net cost per patient switched per year	-	-	–$12,031	-	–$13,774
Total	**$1,253,474,669**	**$1,147,305,517**	**–$106,169,152**	**$1,137,400,906**	**–$116,073,763**
Net cost per patient switched over 3 years	-	-	–$39,559	-	–$43,250
Relapses					
Year 1	11,224	9,614	–1,610	9,545	–1,678
Year 2	11,224	9,782	–1,442	9,517	–1,706
Year 3	11,224	9,926	–1,297	9,609	–1,614
Total	**33,671**	**29,322**	**–4,349**	**28,672**	**–4,999**
Quality measures					
Readmissions					
Year 1	2,593	2,221	–372	2,205	–388
Year 2	2,593	2,260	–333	2,198	–394
Year 3	2,593	2,293	–300	2,220	–373
Total	**7,778**	**6,773**	**–1,005**	**6,623**	**–1,155**
Average AP adherence[1]					
Year 1	69.5%	78.9%	9.4%	82.5%	13.0%
Year 2	69.5%	76.3%	6.8%	86.8%	17.3%
Year 3	69.5%	75.6%	6.1%	86.8%	17.3%
Average	**69.5%**	**76.9%**	**7.4%**	**85.4%**	**15.9%**

AP = antipsychotic; OAP = oral antipsychotic; PP1M = once-monthly paliperidone palmitate; PP3M = once-every-three-months paliperidone palmitate; PP6M = once-every-six-months paliperidone palmitate; USD = United States Dollars.
[1]Average AP adherence was reported among patients who switched and was compared between the cohort of patients remaining on OAPs relative to the 20% of patients who switched to PP1M, as well as the 20% of patients with subsequent on-label transitions to PP3M and PP6M.

Plan-level costs

- Switching 20% (n=2,684) of patients from OAPs to PP1M only resulted in plan-level cost savings of $106.2 million (**Figure 2**)
- Incorporating subsequent transitions to PP3M and PP6M led to additional plan-level savings of $9.9 million relative to patients treated with PP1M only, representing $116.1 million in plan-level cost savings relative to patients treated with OAPs

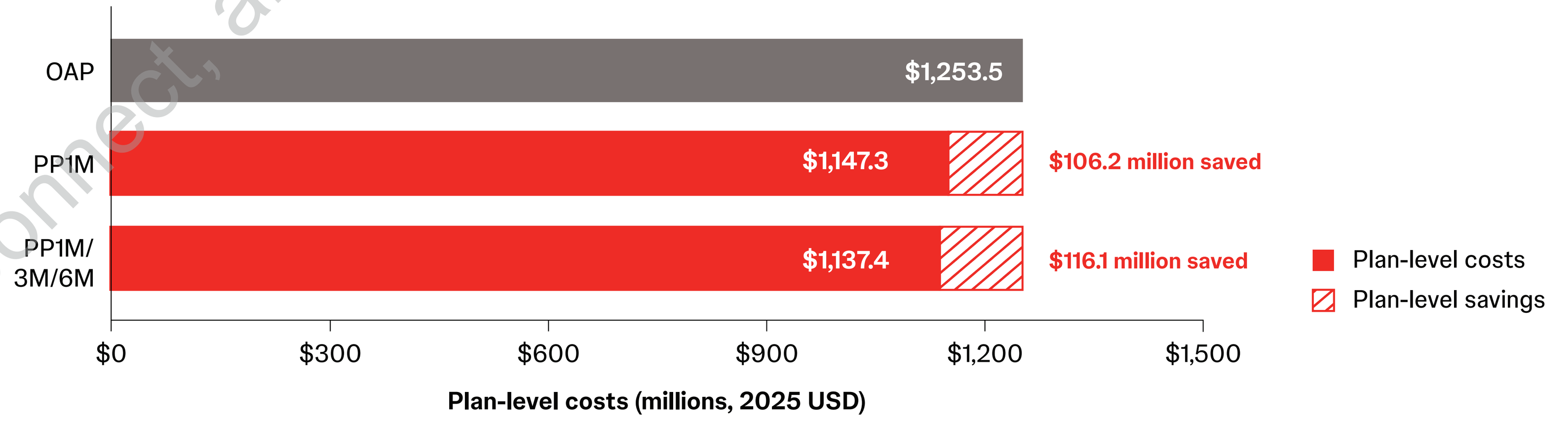
Relapses and Readmissions

- Switching 20% of patients from OAPs to PP1M only avoided 4,349 relapses, with subsequent transitions to PP3M and PP6M avoiding an additional 650 relapses (**Figure 3**)
- Similarly, switching patients from OAPs to PP1M avoided 1,005 readmissions, and subsequent transitions to PP3M and PP6M additionally avoided 150 readmissions

Adherence

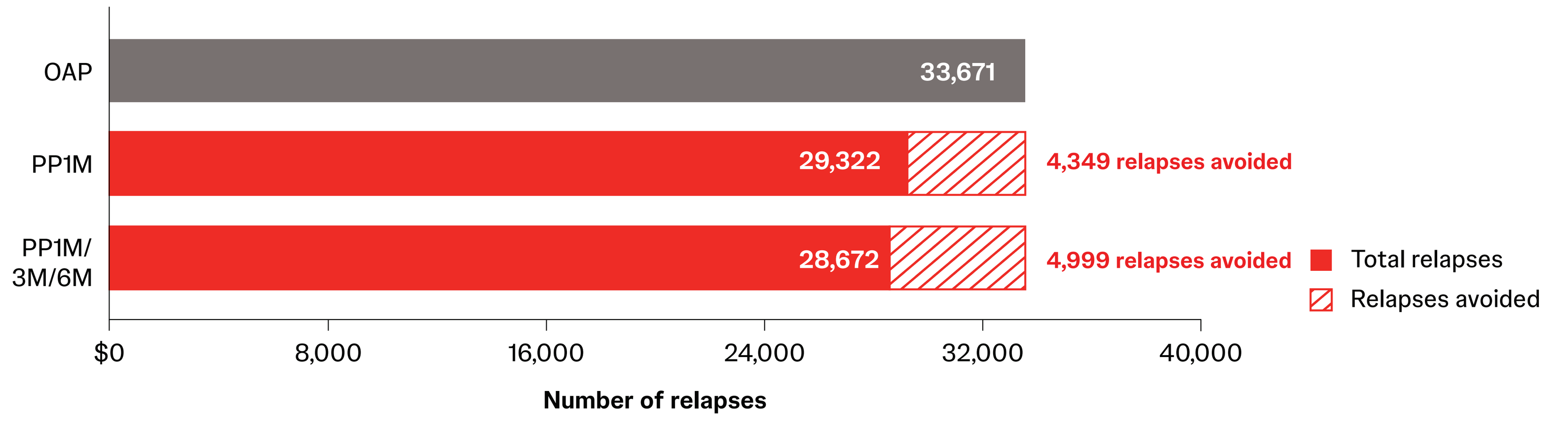
- Among the 20% of patients who switched from OAPs to PP1M only, switching to PP1M resulted in a 7.4 percentage point increase in average adherence to any AP, while incorporating transitions to PP3M and PP6M resulted in an additional 8.5 percentage point increase in average AP adherence (**Figure 4**)

Figure 2: Total plan-level costs and cost savings associated with switching 20% of Medicaid beneficiaries with schizophrenia from OAPs to PP1M, with subsequent transitions to PP3M and PP6M


OAP
PP1M
PP1M/ 3M/6M
$1,253.5
$1,147.3
$1,137.4
$106.2 million saved
$116.1 million saved
Plan-level costs
Plan-level savings
$0
$300
$600
$900
$1,200
$1,500
Plan-level costs (millions, 2025 USD)

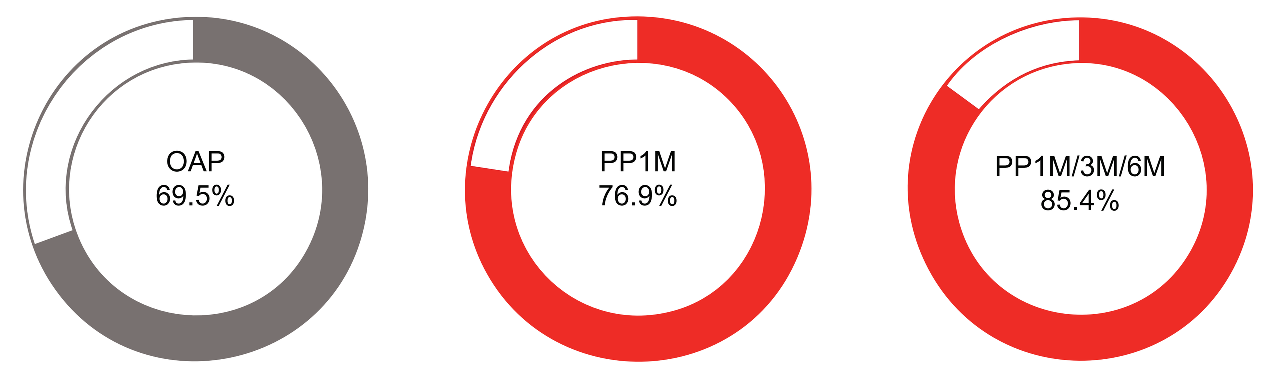
OAP = oral antipsychotic; PP1M = once-monthly paliperidone palmitate; PP3M = once-every-three-months paliperidone palmitate; PP6M = once-every-six-months paliperidone palmitate; USD = United States Dollars.

Figure 3: Total relapses and relapses avoided associated with switching 20% of Medicaid beneficiaries with schizophrenia from OAPs to PP1M, with subsequent transitions to PP3M and PP6M


OAP
PP1M
PP1M/ 3M/6M
33,671
29,322
28,672
4,349 relapses avoided
4,999 relapses avoided
Total relapses
Relapses avoided
$0
8,000
16,000
24,000
32,000
40,000
Number of relapses

OAP = oral antipsychotic; PP1M = once-monthly paliperidone palmitate; PP3M = once-every-three-months paliperidone palmitate; PP6M = once-every-six-months paliperidone palmitate.

Figure 4: Average AP adherence associated with switching 20% of Medicaid beneficiaries with schizophrenia from OAPs to PP1M, with subsequent transitions to PP3M and PP6M


OAP
69.5%
PP1M
76.9%
PP1M/3M/6M
85.4%

AP = antipsychotic; OAP = oral antipsychotic; PP1M = once-monthly paliperidone palmitate; PP3M = once-every-three-months paliperidone palmitate; PP6M = once-every-six-months paliperidone palmitate.

Limitations

- Results reported are specific to patients with schizophrenia covered by Medicaid and may not be generalizable to patients with other types of insurance or those who are uninsured
- Furthermore, as the estimated number of adult Medicaid beneficiaries with schizophrenia in a 1 million member plan is based on single-state prevalence data, plan-level cost savings and relapses avoided may vary if national prevalence estimates differ
- Model inputs were based on data available in published literature and may not fully represent outcomes observed in clinical practice; analyses based on real-world data are warranted to confirm the findings of this study
- Given that PP6M is a newer product, the treatment discount was based on assumptions, and real-world rebates may vary widely

Conclusions

- Based on the findings of this 36-month Markov model, switching patients from OAPs to PP1M is associated with notable plan-level cost savings driven by avoided relapses and increased adherence to APs
- These results highlight the economic benefit of paliperidone palmitate LAIs, with longer-acting formulations PP3M and PP6M leading to additional incremental cost savings, further reductions in relapse rates, and continued AP adherence improvements
- This study offers important insights that should be taken into account in real-world clinical practice to inform treatment decisions

Disclosures

CB and YD are employees of Johnson & Johnson. LM, BL, LD, and DP are employees of Analysis Group, ULC., a consulting company that has provided paid consulting services to Johnson & Johnson which funded the development and conduct of this study.

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