

Healthcare Cost Savings Associated With Aripiprazole Once-Monthly (AOM) Treatment Among Schizophrenia Patients With Psychiatric Hospitalizations Prior to AOM Treatment Initiation

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Background

- The treatment of schizophrenia causes a significant economic burden to society and healthcare plans
 - The high cost of treating schizophrenia, estimated to be US\$22.7 billion in 2002 and projected to be US\$46.7 billion in 2012 when adjusted for inflation using the US Consumer Price Index Medical Care Category,^{1,2} is due to multiple factors, including high chronicity and frequent relapses^{3,4}
 - Relapse rates have been shown to be as high as 80% following treatment discontinuation,⁵ and hospitalizations due to relapses contribute substantially to the high treatment costs⁴
 - A history of multiple admissions has been shown to be a statistically significant predictive factor for readmission for patients with schizophrenia⁶
- Antipsychotic treatments benefit patients by reducing the risk of relapse, and long-acting injectable (LAI) antipsychotics have been shown to reduce schizophrenia relapse rates, hospitalizations, and hospitalization-related costs⁷⁻¹⁰
- Aripiprazole once-monthly (AOM) is a recently launched LAI that has been shown to reduce total psychiatric hospitalizations among patients switching from oral antipsychotic standard of care (SOC) to AOM in a multicenter, open-label mirror study of patients with schizophrenia who are aged 18–65 years (AOM Mirror study; NCT01432444)¹¹
 - Total psychiatric hospitalization rates were reduced from 41.5% in the SOC 6-month retrospective period to 14.2% in the AOM 6-month prospective period ($P < .0001$)
 - Among all patients who relapsed during the retrospective SOC treatment period ($n=76$), 22.4% had a relapse during the prospective AOM treatment period ($n=17$, $P < .0001$)

Study Objective

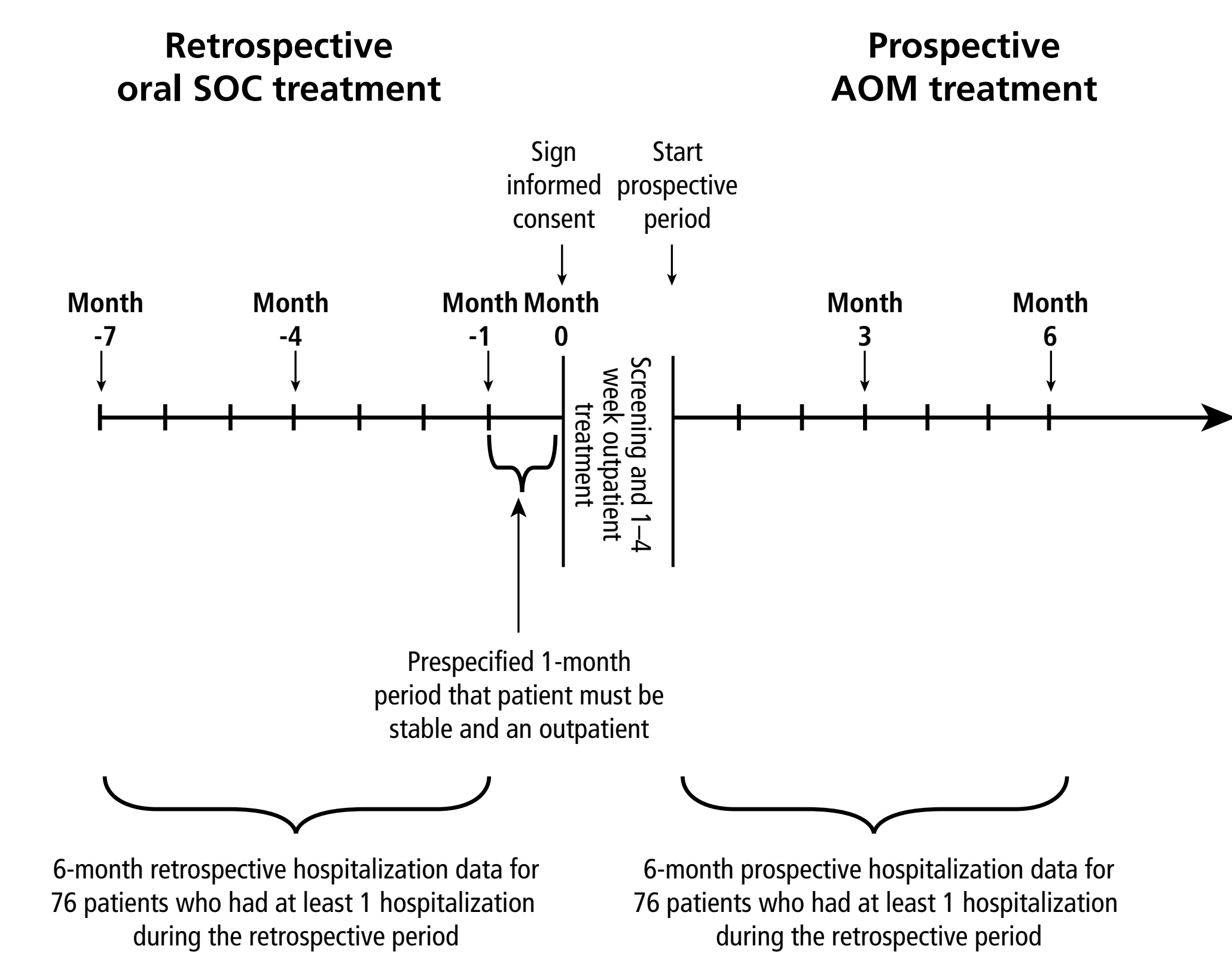
- The objective of this study was to develop an economic model to estimate healthcare cost savings associated with AOM treatment initiation among patients with at least 1 psychiatric hospitalization prior to initiating treatment with AOM

Methods

Patient Population

- From the AOM Mirror study analysis,¹¹ which investigated psychiatric hospitalization rates among patients switching from oral SOC to AOM, a subgroup of 76 patients with schizophrenia who had at least 1 psychiatric hospitalization during the retrospective period was analyzed (Figure 1)

Figure 1. AOM Mirror Study Design¹¹

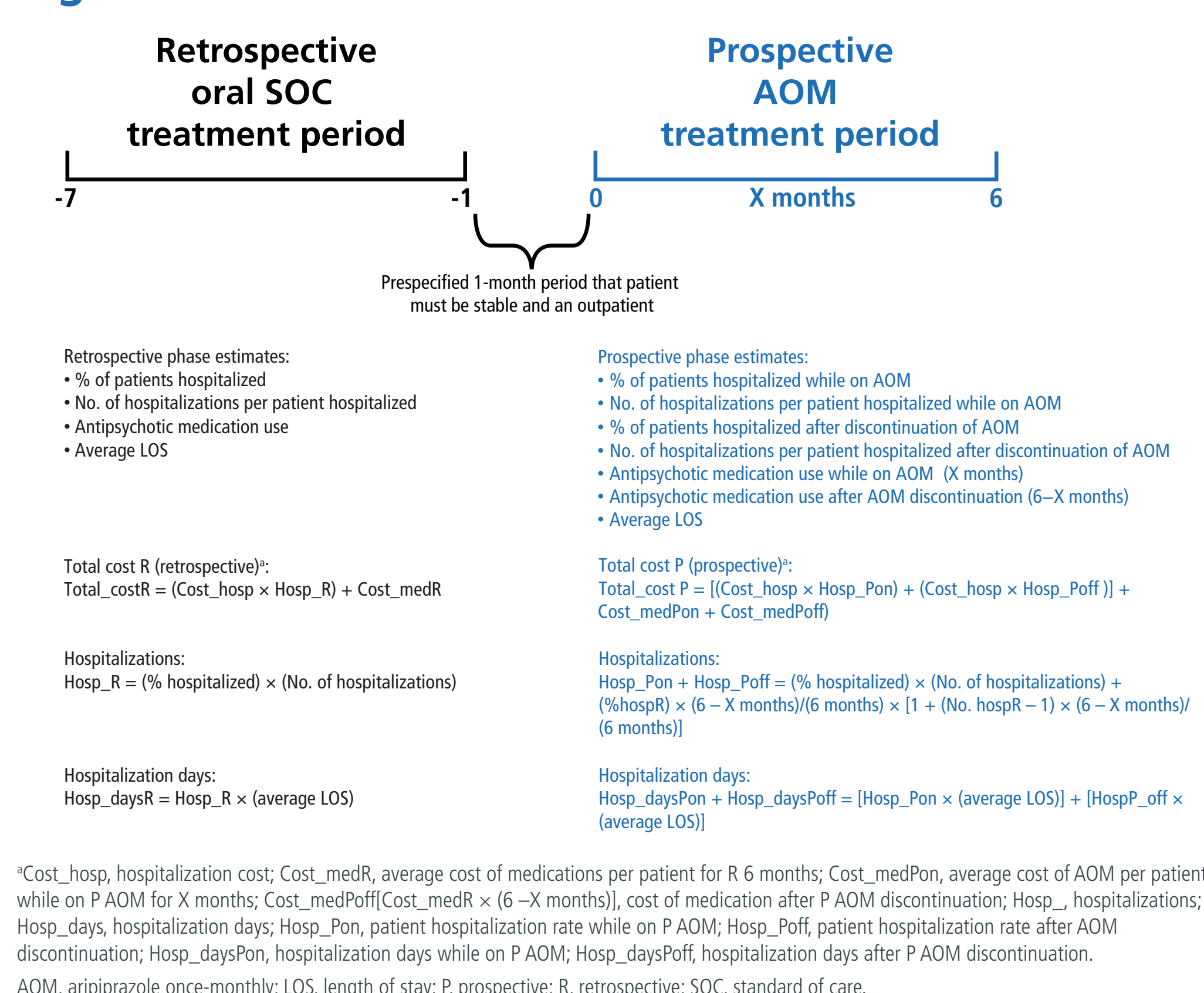


AOM, aripiprazole once-monthly; SOC, standard of care.

Model

- An economic model was developed to examine the impact of switching from SOC to AOM on psychiatric hospitalization rates and associated inpatient and treatment costs among patients with at least 1 hospitalization during the retrospective period (Figure 2)

Figure 2. Model Structure



Inputs

- Clinical and cost (drug therapy and hospitalization) inputs are presented in Table 1
 - Data on psychiatric hospitalizations (percent of patients and number of hospitalizations) were obtained from the clinical trial; for the prospective phase, adjustments were made to estimate additional resource use for patients who discontinued the study and thus did not have complete data on resource use from the trial (Figure 2)

Table 1. Model Inputs

Parameter	Parameter Value or Estimate	Data Source
Duration of treatment (in months)		
Retrospective	6	Study design
Prospective on AOM	4.59	AOM Mirror study results ¹¹
Prospective off AOM	1.41	Calculated as 6 months minus time on AOM
Patients with hospital stay		
Retrospective	100.0%	Subpopulation of AOM Mirror study ¹¹
Prospective while on AOM	22.4%	AOM Mirror study results ¹¹
Prospective off AOM	23.5%	Estimated assuming uniform distribution of hospitalizations for SOC (1.41 months/6 months)
Total estimated prospective	45.9%	Sum of the 2 percentages above
Among patients with at least 1 hospitalization, mean hospitalization per patient		
Retrospective	1.16	AOM Mirror study results ¹¹
Prospective while on AOM	1.29	AOM Mirror study results ¹¹
Prospective off AOM	1.04	Calculated as $(no. Hosp_R - 1) \times (6 - X \text{ months}) / (6 \text{ months}) + 1$
Average estimated number of hospitalizations per patient during the prospective period	1.16	Weighted average of prospective hospitalizations while on and off AOM
Average length of stay (in days)	12.36	HCUP ¹²
Drug costs		
AOM (per month)	\$1,436	Redbook ¹³ ; distribution of AOM doses from AOM Mirror study ¹¹ <ul style="list-style-type: none"> 400 mg (94%) 300 mg (6%)
Cost of concomitant oral aripiprazole treatment at the time of AOM initiation	\$255	Redbook ¹³
Oral SOC (per month)	\$182	Redbook ¹³ <ul style="list-style-type: none"> Average cost of available doses of branded and generic oral antipsychotic treatments⁴
Hospitalization charges		
Average charge ^a per hospitalization	\$30,451	HCUP ¹²

^aOral antipsychotics include aripiprazole, fluphenazine, haloperidol, olanzapine, risperidone, quetiapine, ziprasidone, paliperidone.
^bCharges represent the amount per hospitalization charged to the payer; actual reimbursement may vary by health plan.
AOM, aripiprazole once-monthly; HCUP, Healthcare Cost and Utilization Project; SOC, standard of care.

Model Calculations

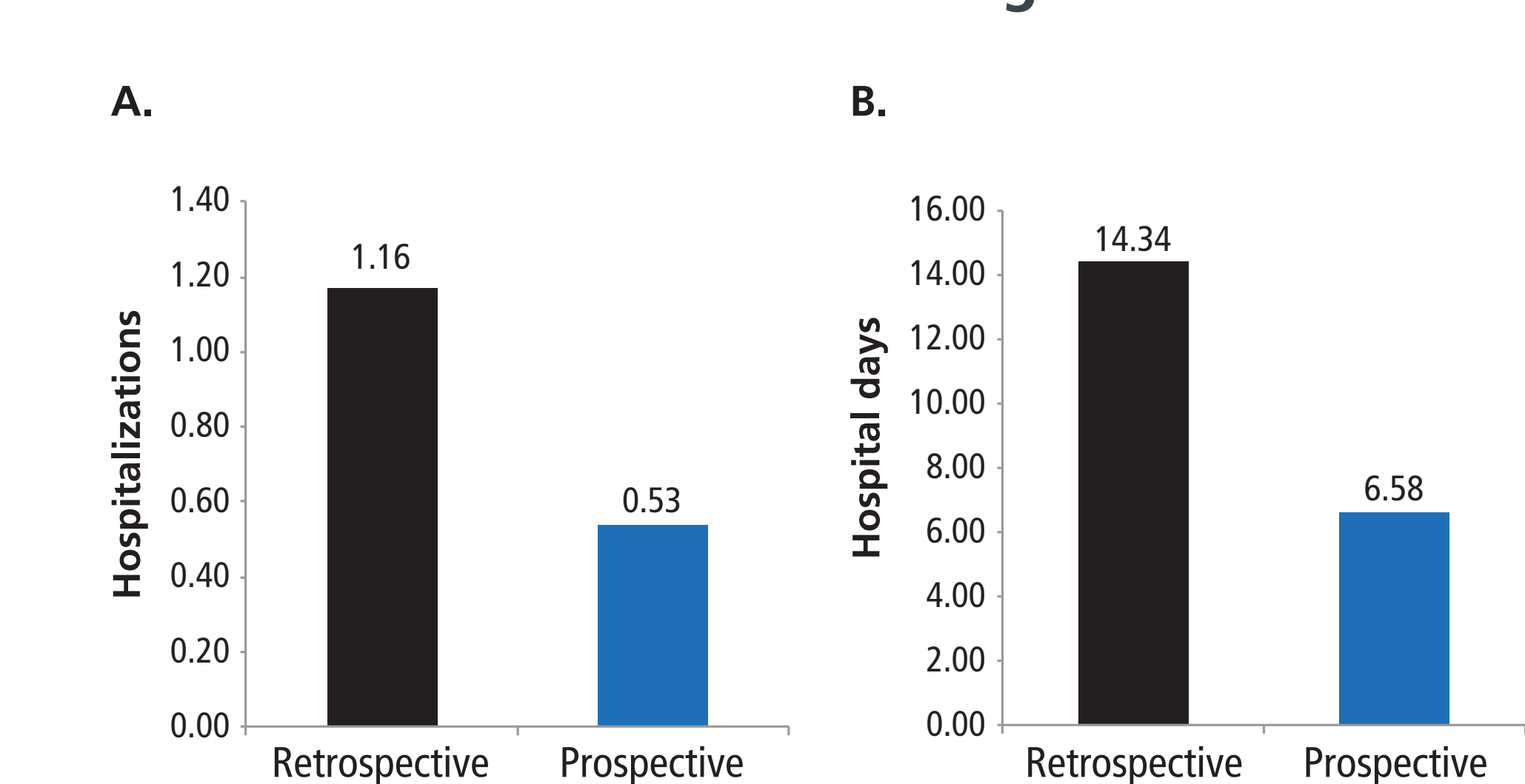
- The model calculated costs for drug and hospitalized charged amounts are shown in Figure 2

Results

Change in Hospitalizations

- Based on model results, estimated hospitalization rate among all patients decreased from 1.16 in the retrospective phase to 0.53 in the prospective phase, and estimated hospitalization days decreased from 14.34 to 6.58 (Figure 3)

Figure 3. Hospitalizations and Hospital Days per Patient Before and After Switching From SOC to AOM

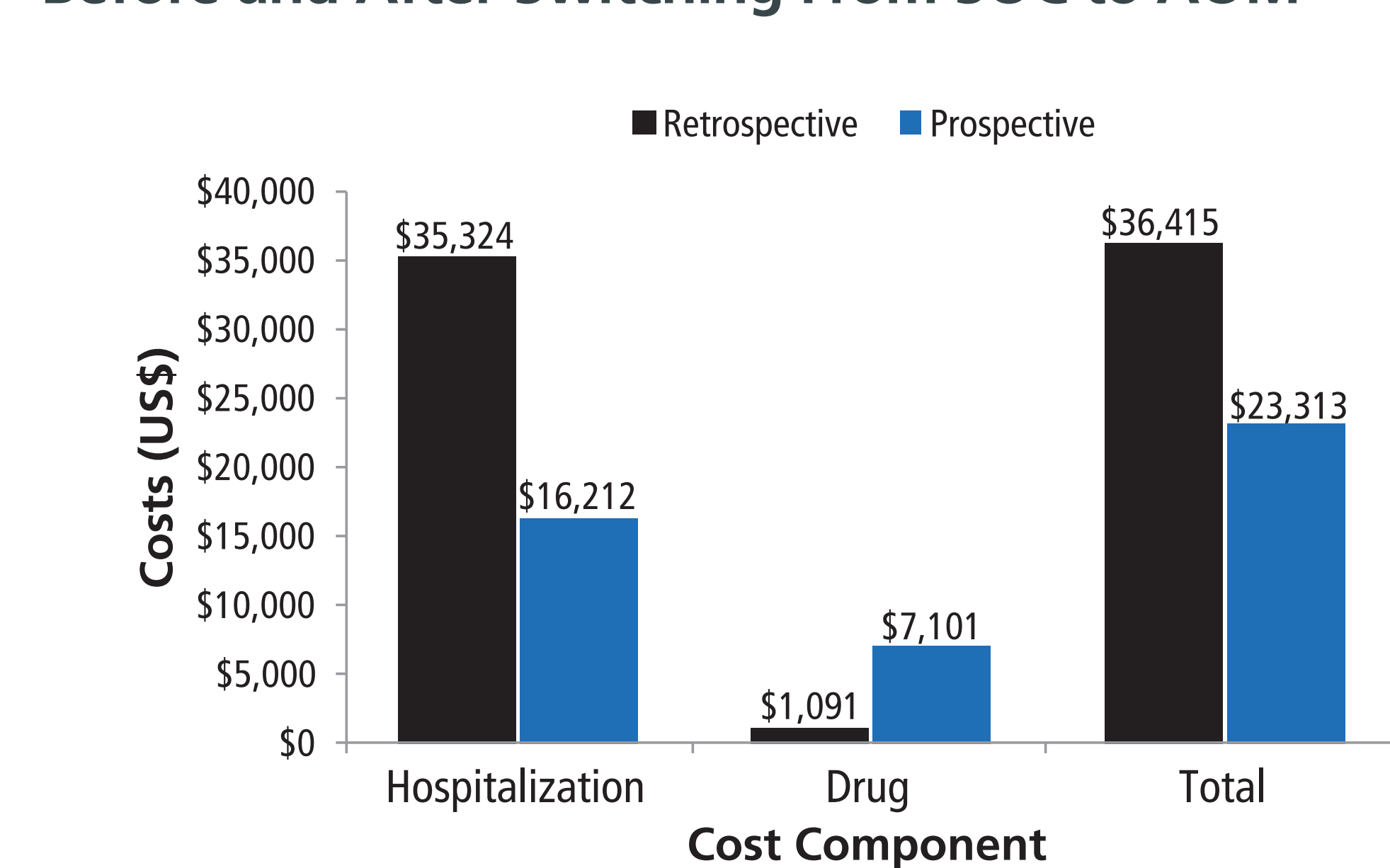


AOM, aripiprazole once-monthly; SOC, standard of care.

Change in Costs

- Six-month costs before and after the switch to AOM are summarized in Figure 4
- Total costs for patients with at least 1 hospitalization in the retrospective period decreased by 36% from \$36,415 in the retrospective period to \$23,313 in the prospective period

Figure 4. Estimated 6-Month Costs per Patient Before and After Switching From SOC to AOM



AOM, aripiprazole once-monthly; SOC, standard of care.

Limitations

- In this study design
 - Because there was no parallel control group, it cannot be determined if other treatments may have had a similar effect
 - It can be difficult to separate drug treatment effects from trial effects
 - Results may be influenced by independent factors, including admission patterns, insurance coverage, hospital bed availability, and community support
 - Because the study was not blinded, its influence on the clinical decision to hospitalize or not to hospitalize any given patient cannot be determined
- This analysis evaluated only 2 aspects of the cost of care for patients with schizophrenia: antipsychotic medication and hospitalization. However, these are large drivers of economic impact
- This analysis only included patients with previous psychiatric hospitalizations; therefore, the cost-saving results may be applicable only to a high-risk schizophrenia patient population

Conclusions

- Among patients with schizophrenia having at least 1 previous psychiatric hospitalization, treatment initiation with AOM may present cost-saving opportunities for health plans as well as improve patient outcomes by reducing the rate of psychiatric hospitalizations

References

- Wu EQ, et al. *J Clin Psychiatry*. 2005;66:1122-1129.
- US Department of Labor. Measuring Price Change for Medical Care in the CPI. Available from: <http://www.bls.gov/cpi/cpi/cpi4.htm>. Accessed April 23, 2014.
- Carr VJ, et al. *Br J Psychiatry*. 2004;184:517-525.
- Ascher-Svanum H, et al. *BMC Psychiatry*. 2010;10:2.
- Emsley R, et al. *BMC Psychiatry*. 2013;13:50.
- Yussuf AD, et al. *Afr J Psychiatry (Johannesburg)*. 2008;11:187-190.
- Tiihonen J, et al. *Am J Psychiatry*. 2011;168:603-609.
- Peng X, et al. *Clinicoecon Outcomes Res*. 2011;3:9-14.
- Offord S, et al. *J Med Econ*. 2013;16:231-239.
- Bera R, et al. *J Med Econ*. 2013;16:522-528.
- Kane JM, et al. *J Med Econ*. 2013;16:917-925.
- Healthcare Cost and Utilization Project (HCUP). July 2013. Agency for Healthcare Research and Quality, Rockville, MD. Available from: <http://www.ahrq.gov/research/data/hcup/index.html>. Accessed May 9, 2014.
- Micromedex. Red Book Online. Accessed through Micromedex 2.0. Thomson Reuters September, 2013.

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Declaration of Financial/Other Relationship

Siddhesh A. Kamat, Christopher M. Blanchette, Muralikrishna Tangirala, Steve Offord, and Benjamin Gutierrez are employees of Otsuka America Pharmaceutical, Inc. Ross A. Baker is an employee of Otsuka Pharmaceutical Development and Commercialization, Inc. Anna Eramo is an employee of Lundbeck. Michele Wilson and Stephanie Earnshaw are employees of RTI Solutions, which received funding from Otsuka America Pharmaceutical, Inc., and H. Lundbeck A/S in connection with the conduction of this study.



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