

# Budgetary implications of replacing patented sevelamer in the management of chronic kidney disease in Mexico

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## Objectives

Chronic kidney disease (CKD) is a progressive condition frequently complicated by hyperphosphatemia, which contributes to cardiovascular morbidity and increased healthcare resource utilization in patients receiving dialysis. This study aimed to evaluate the budgetary implications of replacing patented sevelamer with a lower-cost alternative in the management of CKD within the Mexican Institute of Social Security (IMSS).

## Methods

A budget impact analysis was conducted from the institutional perspective of IMSS over a one-year time horizon. The analysis followed a cohort of 560 patients with CKD receiving phosphate binder therapy. A substitution scenario was modeled in which 70% of patients treated with patented sevelamer were switched to generic sevelamer (Synthon). Drug acquisition costs were compared between treatment alternatives. The annual per-patient cost of patented sevelamer was estimated at USD 82, while the annual per-patient cost of generic sevelamer was USD 51. Clinical outcomes were assumed to be equivalent between treatments, and the analysis focused exclusively on direct pharmaceutical expenditures.

## Results

In the modeled cohort of 560 patients, the scenario without generic availability—where all patients received patented sevelamer—resulted in a total annual pharmaceutical expenditure of USD 45,920. Under the substitution scenario, in which 70% of patients (n=392) were switched to generic sevelamer, total annual drug acquisition costs decreased to USD 33,768. This reduction was driven by the lower annual per-patient cost of generic sevelamer compared with patented sevelamer, generating a direct saving of USD 31 per patient switched to the generic alternative. At the cohort level, this translated into total annual savings of USD 12,152 for IMSS. Budget savings increased proportionally with the substitution rate.

Table 1. Budget Impact parameters: 560 patients with CKD

Patented Sevelamero	Current Scenario	New Scenario	Current Scenario	New Scenario
Percentage of use	100%	30%	560	168
Variability (±10%)	(90%-110%)	(27%-33%)	(504-616)	(151-185)
Treatment cost (per patient)	\$82.00	\$82.00	\$45,920.00	\$13,776.00
Variability (±10%)	(\$73.80-\$90.20)	(\$73.80-\$90.20)	(\$41,328.00-\$50,512.00)	(\$12,398.40-\$15,153.60)
Generic Sevelamero Synthon	Current Scenario	New Scenario	Current Scenario	New Scenario
Percentage of use	0%	70%	0	392
Variability (±10%)	(0%-0%)	(63%-77%)	(0-0)	(353-431)
Treatment cost (per patient)	\$51.00	\$51.00	\$0.00	\$19,992.00
Variability (±10%)	(\$45.90-\$56.10)	(\$45.90-\$56.10)	(\$0.00-\$0.00)	(\$16,190.80-\$24,165.20)
<b>Total cost per scenario</b>			<b>\$45,920.00</b>	<b>\$33,768.00</b>
Variability (±10%)			(\$41,328.00-\$50,512.00)	(\$28,589.20-\$39,318.80)
Cost difference			\$12,152.00 (\$9,848.40-\$16,723.80)	Budget reduction 26.50%

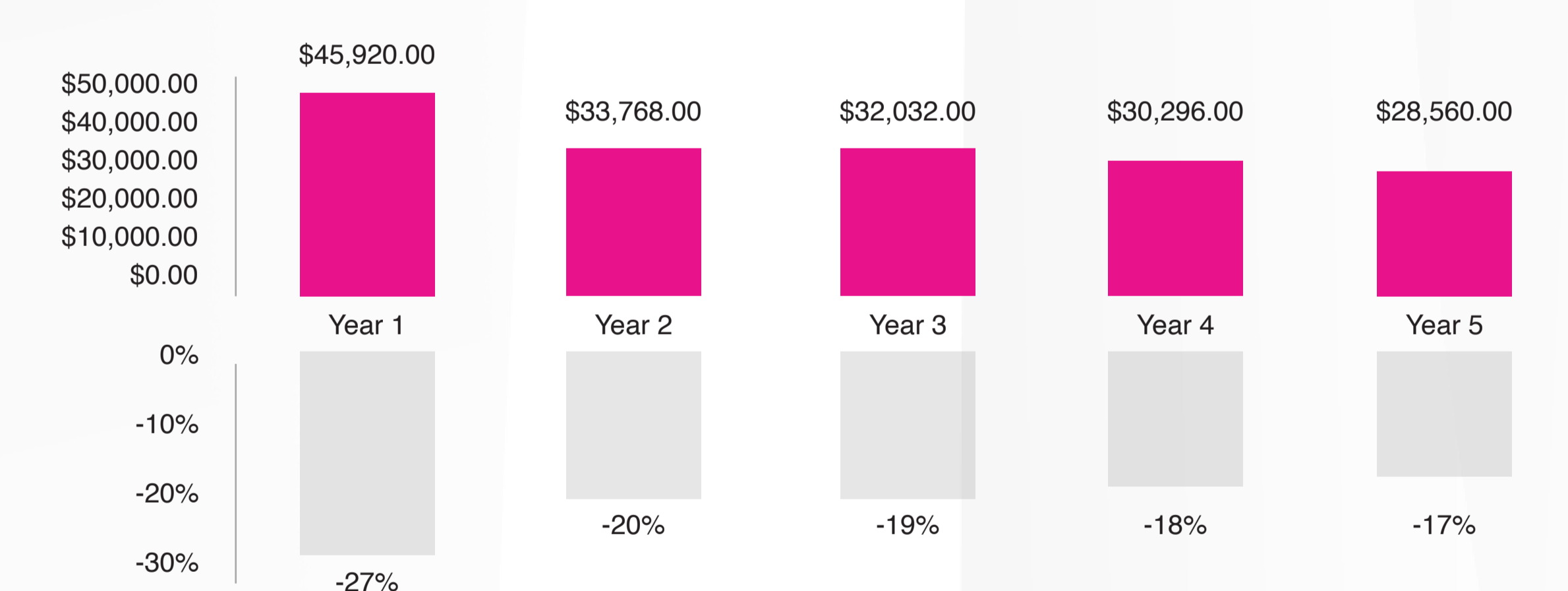
Illustration 2. BI PSA: 5 years results for 560 patients with CKD.



Table 2. BI sensitivity analysis: 5 years results for 560 patients with CKD.

5 year analysis	Year 1	Year 2	Year 3	Year 4	Year 5
Patented Sevelamero	100%	30%	20%	10%	0%
Percentage of use (patients)	560	168	112	56	0
Generic Sevelamero Synthon	0%	70%	80%	90%	100%
Percentage of use (patients)	0	392	448	504	560
Treatment cost (cohort cost)	\$45,920.00	\$33,768.00	\$32,032.00	\$30,296.00	\$28,560.00
Budget Impact	26.9%	19.8%	18.8%	17.8%	16.7%

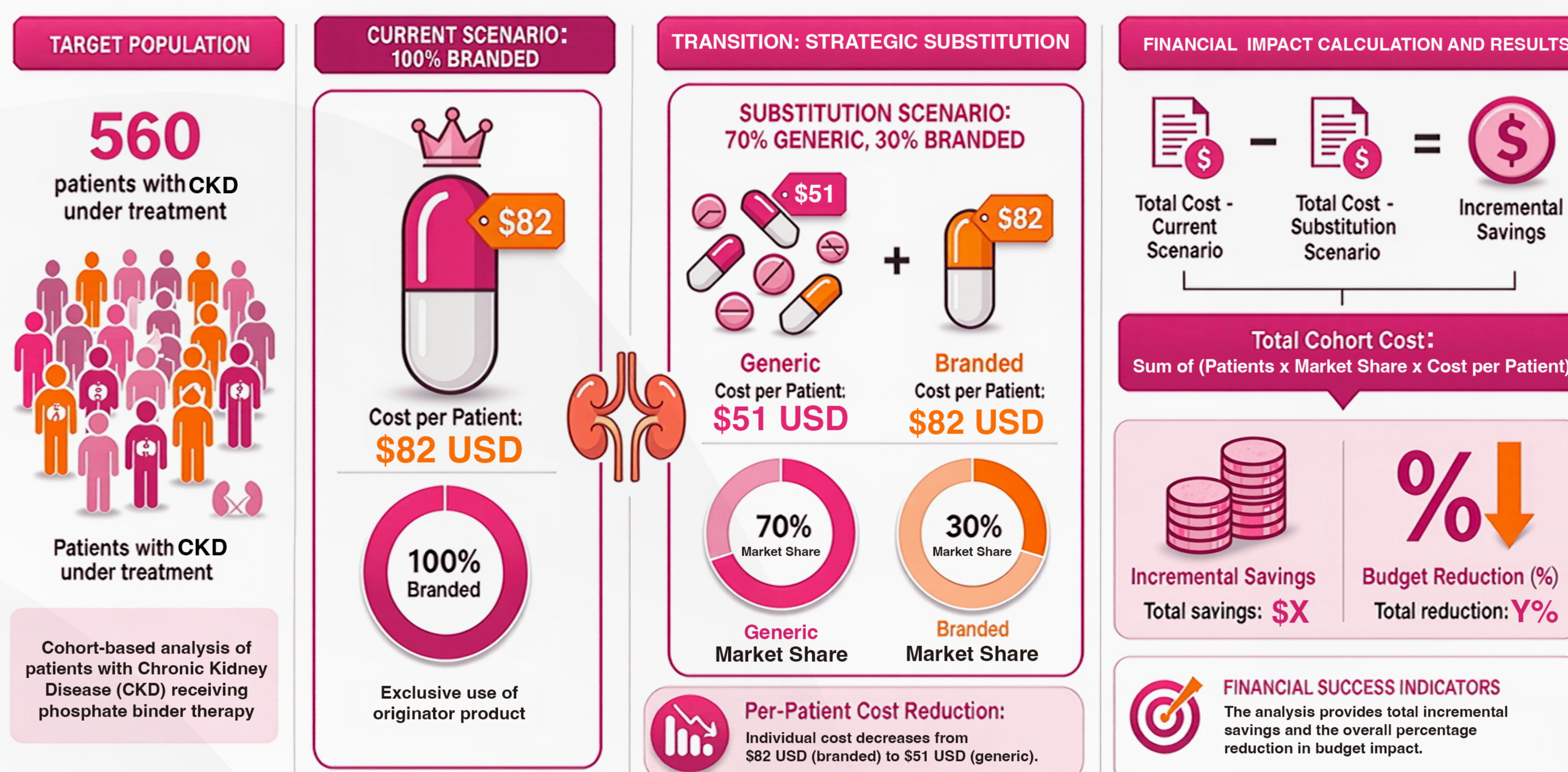
Illustration 3. BI deterministic SA: 5 years results for 560 patients.



## Conclusions

Replacing patented sevelamer with a lower-cost generic alternative represents an effective cost-containment strategy for IMSS. Large-scale substitution can generate meaningful budget efficiencies without compromising access to essential therapy, supporting the financial sustainability of CKD management in the Mexican public healthcare system.

Martin Petrov, Maria Dimitrova, Guenka Petrova. Cost-Minimization Analysis of Direct Cost of Sevelamer Carbonate and Lanthanum Carbonate in the Treatment of Patients with Chronic Kidney Disease Not on Dialysis in Bulgaria. *Value in Health Regional Issues*, Volume 7, 2015, Pages 94-103.



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