

# Cost-effectiveness analysis of erenumab for the prophylactic treatment of episodic and chronic migraine on private health institutions in Mexico.

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## Introduction

### Context

Migraine is considered as the third most prevalent disease in the world (14.4%)<sup>1</sup>. Approximately, 17% of the economically active population in Mexico suffers from migraine, being more present in women working in the financial services and service sectors. Of the total migraine population, only 27% seeks medical attention, with a vast majority (94%) being managed in the private health services<sup>2</sup>.

There are few and limited medications to treat migraine patients in Mexico, given that most of the commonly used prophylactic treatments do not have local authorities approval for treating the disease, were not specifically designed for migraine, and have limited safety and efficacy profiles<sup>3</sup>. Even though the current internationally labeled therapies are used, it is estimated that 15% of migraine patients that seek medical attention fail their first preventive treatment and up to 45% of that population fail a second one<sup>4</sup>.

### Objective

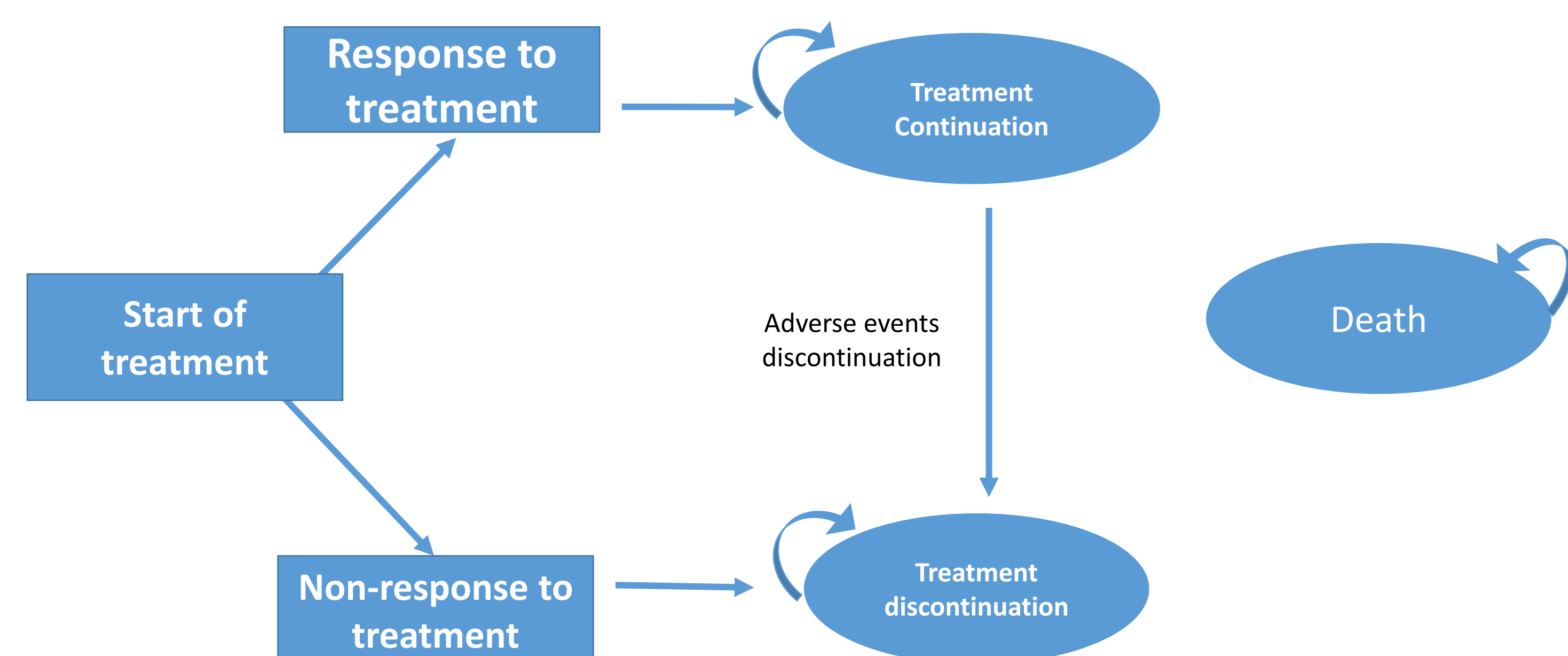
To assess the cost-effectiveness of erenumab 70mg for the prophylactic treatment of episodic and chronic migraine in private health institutions in Mexico.

### Methods

A hybrid decision tree and Markov cohort model was constructed to evaluate erenumab among adult patients with episodic and chronic migraine who failed two prior preventive therapies. This model considers two branches for the decision tree part of the model and three health states based on treatment response and Death. Quarterly cycles were used in a time horizon of 10 years.

A comparison was made against no preventive treatment (NPT) and onabotulinumtoxinA in episodic and chronic migraine, respectively. All patients received best supportive care (BSC) to reduce migraine pain no matter what prophylactic treatment was received.

**Figure 1. Schematic diagram of the hybrid decision tree and Markov model**



Efficacy data such as response rates and migraine days per treatment were extracted from the pivotal randomized controlled trials for each comparator.<sup>5,6,7,8</sup>

Only direct medical costs (drug utilization, administration cost and disease management) were considered in the analysis. Data inputs were extracted from published literature, clinical experts' consultations and market research.<sup>4,9,10</sup>

**Table 1 Resource utilization per cycle**

	Disease management costs (MXN)
BSC cost	\$7,132.40
Migraine day cost	\$464.93
Migraine attack (5 migraine days)	\$2,324.66

Market research, Delphi Panel, and DOF, 2019.

The primary outcomes included accumulated costs, migraine days occurred and the incremental cost-effectiveness ratio (ICER) presented as cost per averted migraine day, all measured in Mexican pesos (MXN). Costs and benefits were discounted at 5%. Sensitivity analyses were performed to assess the robustness of the model estimations.

## Results

The management of episodic and chronic migraine with erenumab was associated with a reduction of 160 and 226 days with migraine over 10 years, respectively.

Treatment with erenumab in the private payer perspective had an incremental cost-effectiveness ratio of MXN 739.35 and MXN 561.83 versus no preventive treatment and onabotulinumtoxinA in episodic and chronic migraine, respectively.

**Table 2. Cost-Effectiveness analysis results (episodic migraine)**

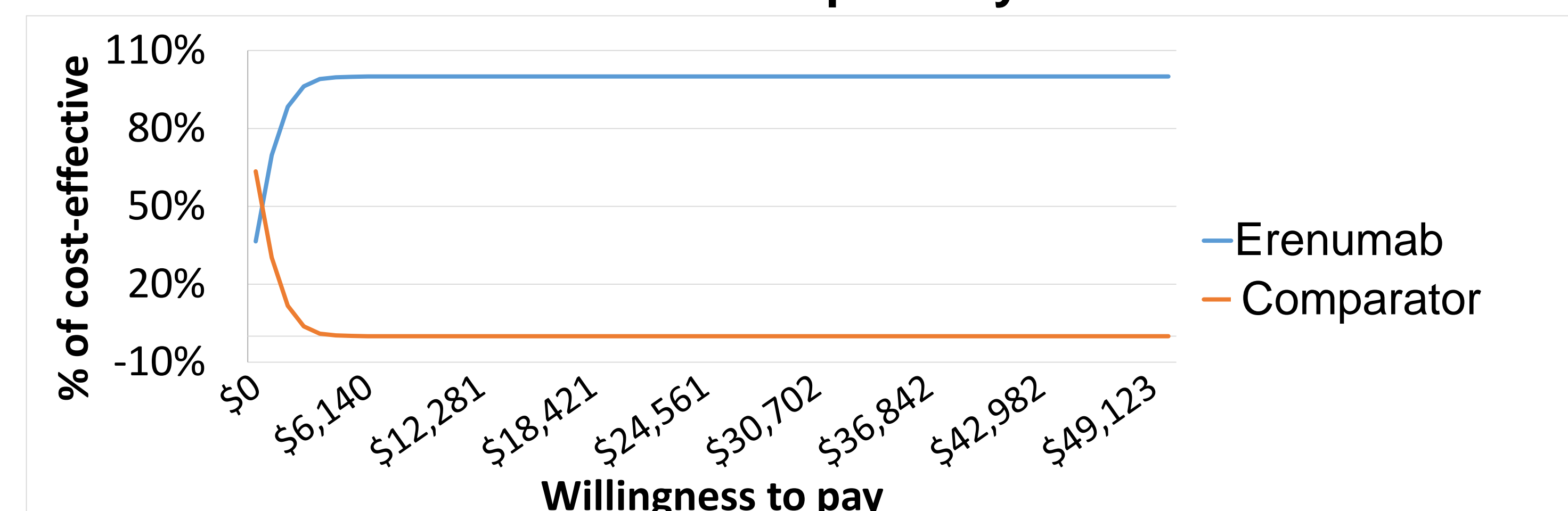
Comparator	Total cost (MXN)	Incremental cost	Days with migraine	Migraine days averted	ICER
NPT	634,447		879		
Erenumab	752,421	117,974	719	-160	739.35

**Table 3. Cost-Effectiveness analysis results (chronic migraine)**

Comparator	Total cost (MXN)	Incremental cost	Days with migraine	Migraine days averted	ICER
Onabotulinum toxin A	1,065,148		1,415		
Erenumab	1,192,195	127,047	1,189	226	561.83

Model results were sensitive to the cost per migraine day and treatment costs. Probabilistic sensibility analysis demonstrated erenumab was cost-effective in 100% of the simulations, assuming a willingness-to-pay threshold of MXN 188,974 (1 GDP per capita) for both cohorts.

**Table 3. Cost-Effectiveness acceptability curve**



## Conclusions

The use of erenumab is a cost-effective approach for preventing monthly migraine days among patients with chronic migraine versus onabotulinumtoxin A and no preventive treatment among patients with episodic migraine in the Mexican private health care context.

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## Disclosures

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