

Cost minimization and budget impact analysis of viscosupplementation with Hylan G-F 20 for the treatment of knee osteoarthritis from the perspective of the public sector in El Salvador and Panama.

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Objective

- Osteoarthritis (OA) is characterized by a significant or symptomatic loss of articular cartilage, leading to subchondral sclerosis and osteophyte formation.
- New viscosupplementation therapies have been introduced for knee OA. Hylan G-F 20 6ml requires a lower quantity of injections while maintaining effectiveness.

Methods

- To perform a cost minimization (CMA) and budgetary impact analysis (BIA) of 6 mL Hylan G-F 20 viscosupplementation for the treatment of knee osteoarthritis in patients who are not suitable for pharmacological treatment or surgery in El Salvador and Panama.

Figure 1. Model structure

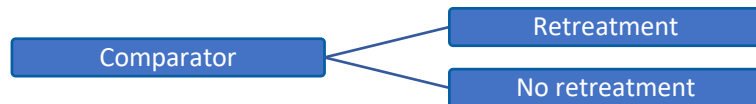


Table 1. Population included in the model

Variable	El Salvador		Panama	
	% (n)	Source	% (n)	Source
Population	100% (6,765,753)	[4]	100% (4,278,500)	[5]
% insured	27% (1,826,753)	[6]	84% (3,593,940)	[7]
Knee OA Prevalence	4.3% (78,958)	[8]	4.5% (160,649)	[9]
% with severity I-II/I-III	70% (55,270)	[10]	87.5% (140,568)	Experts
% treatment candidates	7% (3,869)	Experts	2% (2,811)	Experts

References

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Methods

- Both the CMA and the BIA were developed from the perspective of the public health system (social security). Population was estimated using literature and clinical expert information (Table 1)
- The analysis horizon for CMA was 1 year and for BIA, 5 years.
- The justification of similar effectiveness and safety between the evaluated intervention and its comparators was based on the published literature¹.
- The main parameters of the models were acquisition costs (Table 1), administration, and the need for retreatment (Figure 1 & Table 2)
- For the budgetary impact, quantification of the population was based on published epidemiological information and local databases.
- Costs were reported in US dollars (\$USD) at 2020 prices.

Table 2. Main parameters used in the model

Probability of retreatment, 1 year	Base case	Sensitivity 1	Sensitivity 2	Source
Hylan G-F 20 (6.0mL and 2.0mL)	0.0305	0.2530	0.4000	Pal et al [1] Waddell et al [2] Assumption
Sodium hyaluronate 1%, 0.8 Mda	0.9965	0.9982	0.9982	Petrella et al [3]

Cost – Base case – El Salvador

Injection costs	# injections per cycle	Unit Price (\$USD)	Treatment Price (\$USD)	Source
Hylan G-F 20, 6.0ml	1	\$290.5	\$290.5	Manufacturer
Hylan G-F 20, 2.0ml	3	\$96.8	\$290.5	Public tender
Sodium hyaluronate 1%, 0.8 Mda	5	\$35.0	\$175.0	Public tender

Cost – Base case – Panama

Injection costs	# injections per cycle	Unit Price (\$USD)	Treatment Price (\$USD)	Source
Hylan G-F 20, 6.0ml	1	\$316.7	\$316.7	Manufacturer
Hylan G-F 20, 2.0ml	3	\$107.2	\$316.7	Public tender
Sodium hyaluronate 1%, 0.8 Mda	5	\$87.2	\$261.5	Public tender

Results

Table 3. CMA Results

El Salvador			
Comparator	Annual cost	Difference	% Difference
Hylan G-F 20, 6.0ml	\$316.9	-	-
Hylan G-F 20, 2.0ml	\$351.9	+\$35.0	+10.0%
Sodium hyaluronate 1%, 0.8 Mda	\$519.1	+\$202.2	+39.0%
Panama			
Comparator	Annual cost	Difference	% Difference
Hylan G-F 20, 6.0ml	\$403.7	-	-
Hylan G-F 20, 2.0ml	\$558.2	+\$154.6	+27.7%
Sodium hyaluronate 1%, 0.8 Mda	\$971.3	+\$567.7	+58.4%

Table 4. BIA Results (5 years)

El Salvador			
Scenario	Base case	Minimum	Maximum
OA prevalence (3,70-5,00%) [8]	-\$138,513	-\$118,571	-\$160,231
Intervention Price (-5% a +5%)	-\$138,513	-\$197,690	-\$79,335
Retreatment % (25,3%)	-\$138,513	-	-\$168,420
Panama			
Scenario	Base case	Minimum	Maximum
OA prevalence (3,70-5,00%) [8]	-\$290,728	-\$248,453	-\$334,954
Intervention Price (-5% a +5%)	-\$290,728	-\$321,421	-\$260,037
Retreatment % (25,3%)	-\$290,728	-	-\$353,499

Conclusion

- Hylan G-F20 (6ml) viscosupplementation in patients with knee OA can produce cost savings of 10% (El Salvador) and 27.7% (Panama) when compared to Hylan G-F20 (2ml) and of 39% (El Salvador) and 58.4% (Panama) when compared to low molecular weight hyaluronate derivatives.

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