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A Cost Analysis for Major Cardiovascular Events in Influenza Vaccinated and Unvaccinated Patients after Myocardial Infarction in Colombia

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INTRODUCTION

Major cardiovascular events (MACE) involve a group of chronic diseases, with high costs for the healthcare system. Studies suggest that influenza vaccination may reduce future events in patients with cardiovascular disease.

OBJECTIVE

To estimate potential avoided costs associated medical treatment of mortality related MACE by vaccinating adult Colombian patients against influenza <72 hours after hospitalization for myocardial infarction (MI) or coronary artery disease (CAD).

METHODS

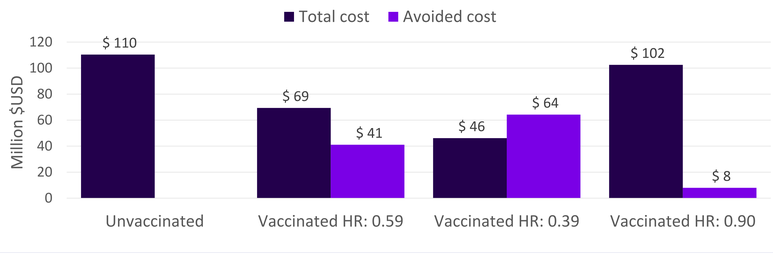
- A cost analysis model was developed from the healthcare system perspective for expected mortality associated MACE events and costs among patients with recent hospitalization for MI or high-risk CAD.
- MACE events included mortality due to MI, heart failure, cardiogenic shock, stroke and sudden cardiac death.
- The number of cases for the analysis was calculated from local public databases based on ICD-10.
- MACE incidence in vaccinated and unvaccinated patients was taken from the IAMI trial[1].
- Pan American Health Organization vaccine acquisition price and costs for MACE events were obtained from local published literature.
- Costs are expressed in 2022 USD$ for a 1-year time horizon using an exchange rate of COP$4,800 per USD$1.
- One-way sensitivity analyses (OWSA) were performed for vaccine efficacy.

POSTER HIGHLIGHT: Vaccination against influenza as an additional treatment for patients with recent **hospitalization for MI or CAD** allows for better healthcare outcomes with reduced MACE events and avoided associated costs for the healthcare system.

Table 1: Inputs Summary

	Unvaccinated	Vaccinated	OWSA range	
Influenza Vaccine Cost[2]	$ 0	$ 5	$ 5	$ 5
MACE Event Cost[3,4,5]	$ 3,959	$ 3,959	$ 3,959	$ 3,959
Vaccines efficacy against cardiovascular death (HR)[1]	-	0.59	0.39	0.90
Cardiovascular mortality (%)[1]	4.5%	2.7%	1.8%	4.1%
Cost per patient	$178	$112	$74	$165
Cost avoided per patient	-	$66	$ 104	$ 13
Cost for population	$ 110,425,101	$ 69,354,191	$ 46,164,919	$ 102,481,721
Total avoided cost	-	$ 41,070,910	$ 64,260,182	$ 7,943,380
% cost reduction	-	37.19%	58.19%	7.19%

Figure 1: Total costs for Vaccinated and Unvaccinated patients



CONCLUSIONS

Results suggest a positive impact of influenza vaccination in the reduction of cardiovascular death and associated costs, in patients with recent MI events. Therefore, additional to the standard of care for disease control, vaccination against influenza may contribute to reducing the risk of a fatal cardiovascular event and healthcare system expenses.

RESULTS

MI annual incidence in 2021 for the Colombian population was 619,826 cases. The cost per vaccine and MACE event was USD$5 and USD$3,959 respectively. Vaccinated individuals have 40% (2.7% versus 4.5%) lower chances of cardiovascular death than vaccinated ones (HR 0.59, CI 0.39-0.9).

The expected annual costs per patient and population were USD$112 and USD$69,354,191 respectively for vaccinated patients, compared to USD$178 and USD$110,425,101 for unvaccinated patients. This represents a difference of USD$66 ($13-$104) per patient for a total of USD$41,070,910 ($7,943,380-$64,260,182), suggesting vaccination might mitigate up to 37.19% (7.19%-58.19%) of total expected costs.

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