

EVALUATION OF THE ECONOMIC IMPACT OF INCREASING INFLUENZA VCR FOR DIABETES MELLITUS TYPE 2 POPULATION IN PANAMA

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Objective

- Vaccination against influenza has been associated with the improvement of risk profile for macrovascular complications in patients with type 2 diabetes mellitus (DM2).
- We determined the savings due to the macrovascular events avoided in DM2 population when vaccination rates with a quadrivalent standard dose influenza vaccine (QIV-SD) are increased from a healthcare system perspective.

Methods

- A cost-benefit analysis model was developed from the healthcare system perspective for a 1-year time horizon.
- The clinical outcomes included correspond to DM2 complications: acute myocardial infarction (AMI) and stroke. QIV-SD effectiveness was determined according to published literature with a reduction of 22% and 18% for AMI and stroke respectively¹.
- Comparison scenarios correspond to expected total cost of macrovascular events with base vaccine coverage rates (VCR) of 20% versus 30%, 40%, and 50%.
- The population used for the analysis was obtained from national public databases and from published literature.
- Clinical data for risk profile and incidence of macrovascular events associated with DM2 was taken from the published literature².
- Costs included in this study where PAHO vaccine acquisition price and costs for event management was obtained from published literature (Table 1).

- One-way sensitivity analysis was performed for the cost of vaccines, AMI and stroke events, vaccine effectiveness against each macrovascular event and diabetic risk profile for each event.

Table 1. Costs Summary

Item	Cost	Source
QIV-SD	\$5,14	PAHO 2021
Acute Myocardial Infarction	\$ 21.700	Pérez, G. et al 2021
Stroke	\$ 22.400	Pérez, G. et al 2021

Table 2. Vaccinated & non-vaccinated patient costs

Event	Non-vaccinated patient		Vaccinated patient	
	Event Probability	Expected cost	Event Probability	Expected cost
Acute Myocardial Infarction	2,68%	\$ 581	2,09%	\$ 453
Stroke	0,67%	\$ 150	0,55%	\$ 123
Total expected cost		\$ 731	\$ 576	

Table 3. Cost-benefit Results

Coverage	Total Cost	Difference	OWSA range
20% (Base case)	\$ 72,480,292	-	-
30%	\$ 70,932,724	\$ 1,547,568	\$646,202 - \$2,328,754
40%	\$ 69,385,156	\$ 3,095,137	\$1,292,404 - \$4,657,507
50%	\$ 67,837,587	\$ 4,642,705	\$1,938,606 - \$6,986,261

Results

- A target population of 103,412 patients with DM2 in Panama was calculated.
- Expected costs per patient due to macro vascular events were calculated at USD \$730.82 for non-vaccinated patients, and USD \$576.03 for vaccinated patients (Table 2).
- In all sensitivity analysis scenarios, the vaccination of DM2 patients resulted in potential savings.

- With a base case of QIV coverage rates of 20%, increasing the rates to 30%, 40% and 50%, represents potential net savings of USD \$1,547,569 (\$646,202-\$2,328,754), \$3,095,138 (\$1,292,404-\$4,657,507) and USD \$4,642,707 (\$1,938,606-\$6,986,261) respectively for the healthcare system (Table 3).

Conclusion

- Influenza vaccination with QIV-SD for the DM2 population represents potential net savings for the healthcare system.
- With the increase in VCR the reduction in macro vascular events and costs related to them is an additional benefit on top of the prevention clinical events due to influenza.
- Therefore, identifying and vaccinating this population may be advantageous.

References

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