



Cost-Effectiveness and Budgetary Impact Analysis of High-Dose Quadrivalent Influenza Vaccine for the Older Adults Population in Argentina

Espinola N1, Silvestrini Viola C1, Ivalo, S2, Bardach A1, Pastori LJ1

- 1. Institute for Clinical Effectiveness and Health Policy (IECS), Argentina
- 2. Braulio Moyano Neuropsychiatric Women 's Hospital, Argentina.



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BACKGROUND

Seasonal influenza is a respiratory infection affecting millions worldwide, with older adults at higher risk of severe complications. Annual vaccination is the most effective prevention,¹ with a 54% coverage rate in Argentina.²

OBJECTIVE

To evaluate the cost-effectiveness and budget impact of high-dose quadrivalent influenza vaccine (HD-QIV) for individuals aged 65 and older in Argentina.

METHODS

Design

- Analytical model:** Decision tree model, incorporating a Budget Impact Model, for a hypothetical cohort of 1 million individuals.³
- Population:** Individuals aged 65 and older.
- Perspective:** social security and private sector in Argentina.
- Time horizon:** single influenza season and lifetime for the quality-adjusted life years (QALYs). The budget impact analysis was conducted over a 5-year.
- Comparators:** Social security sector: standard-dose trivalent (SD-TIV) and standard-dose quadrivalent (SD-QIV). Private sector: SD-QIV

Data

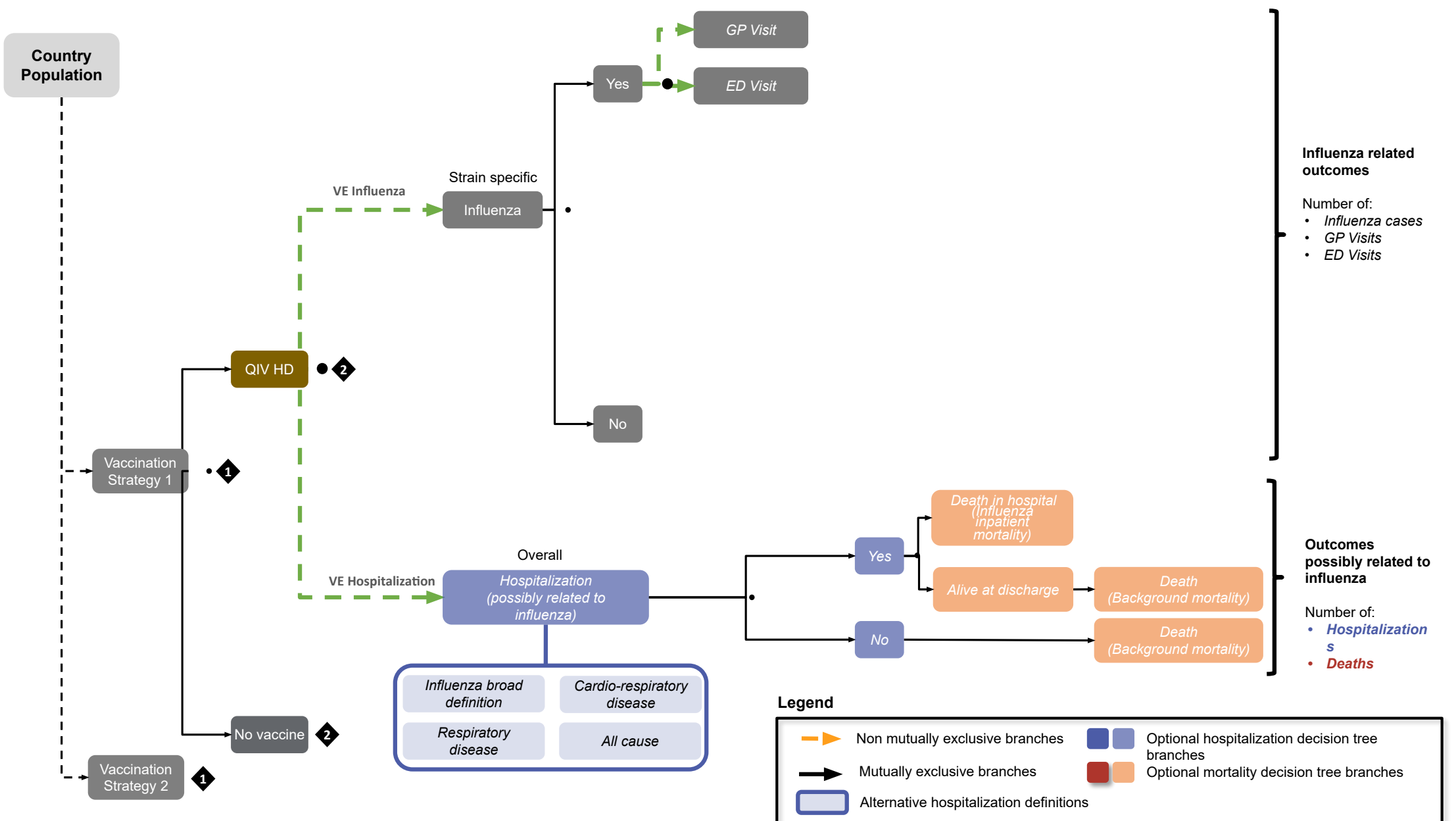
- Demographic, epidemiological and economic inputs were based on the respective local data and local expert opinion.
- The costs are expressed in 2023 US dollars (USD).

Main assumptions

- Discount rate** of 5% for QALYs.
- The distribution of viral types and lineages used in the analysis was based on an average from the years 2015 to 2019, prior to the cessation of Yamagata lineage circulation.
- Market share of HD-QIV** begins at 10% in the social security sector and 15% in the private sector, increasing to 42% and 55% by year five.
- Given the lack of direct comparisons between quadrivalent formulations in the prevention of influenza cases, the relative efficacy of QIV-HD over QIV-SD is assumed to be the same as the relative efficacy of TIV-HD over TIV-SD.

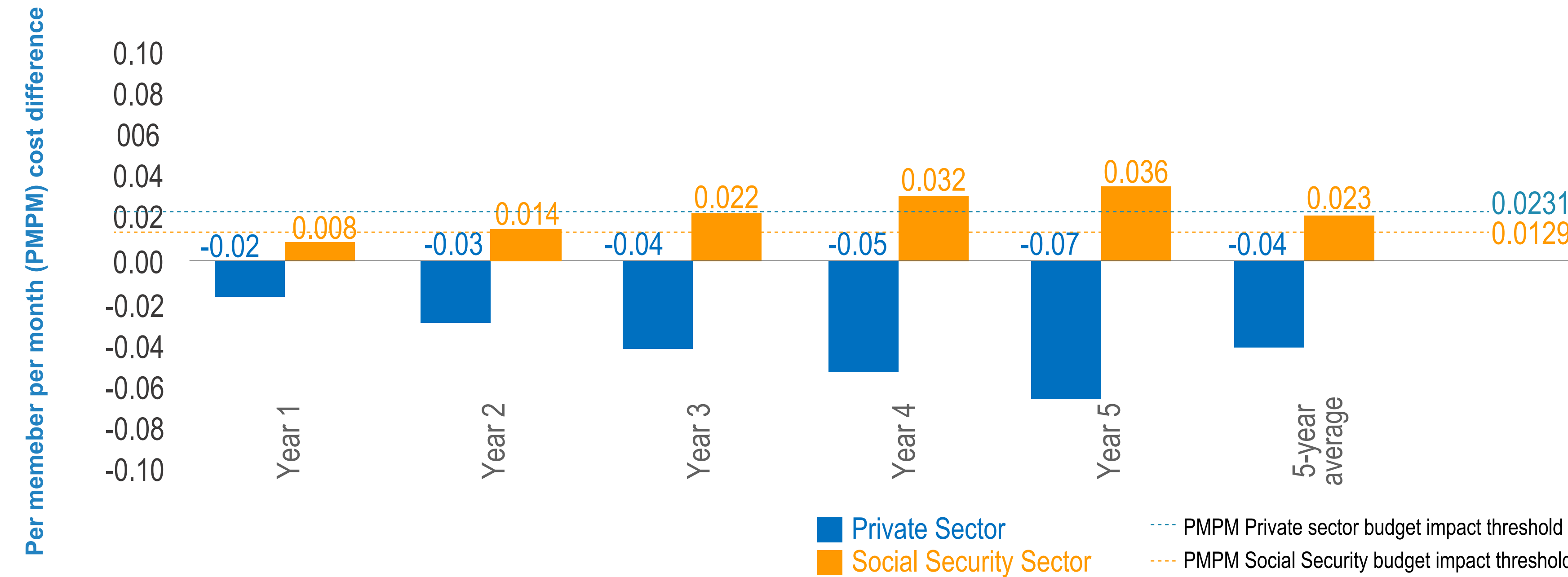
Outcomes

- Number of influenza cases, general practitioner (GP) visits, emergency department (ED) visits, number of hospitalizations and deaths.



RESULTS

Figure 1. Base case results of Budget Impact Analysis



- HD-QIV for those over 65 led to an incremental cost above the high-budget impact threshold in social security but resulted in average cost savings in the private sector.
- HD-QIV vs SD-TIV resulted in an ICER of \$2,369, being cost-effective for a cost-effectiveness threshold of \$8,241.
- HD-QIV is dominant over SD-QIV for both sectors.

Table 1. Base case results of cost-effectiveness analysis

Healthcare Sector	Strategy	Costs per individual	QALYs per individual	Incremental Costs	Incremental QALYs	ICER (\$/QALYs)
Social Security Sector	HD-QIV	\$111.36	7.1027	-	-	-
	SD-TIV	\$108.10	7.1013	\$3.26	0.00138	\$2,368.69
	SD-QIV	\$111.53	7.1014	-\$0.17	0.00130	HD-QIV is Dominant
Private sector	HD-QIV	\$120.27	7.1027	-	-	-
	SD-QIV	\$121.04	7.1014	-\$0.77	0.00130	HD-QIV is Dominant

Table 2. Breakdown of clinical outcomes.

Clinical outcomes	HD-QIV	SD-QIV	SD-TIV	Difference HD-QIV vs SD-QIV	Difference HD-QIV vs SD-TIV
Influenza cases	48,106	52,914	53,298	-4,808	-5,192
Influenza-related GP visits	5,773	6,350	6,396	-577	-623
Influenza-related ED visits	2,869	3,156	3,179	-287	-310
Influenza-related hospitalizations	18,477	19,740	19,813	-1,263	-1,336
Inpatient days	175,530	187,530	188,219	-12,000	-12,689
Deaths	59,238	59,449	59,461	-211	-223
QALYs	7,102,701	7,101,399	7,101,324	1,302	1,377
LYs	9,270,675	9,269,031	9,268,936	1,644	1,739

Uncertainty analysis:

- DSA results: HD-QIV's efficacy against hospitalization and its cost as the most influential variables.
- PSA results: HD-QIV was cost-effective in 88% of simulations and cost-saving in the rest compared to SD-TIV in social security. For HD-QIV vs. SD-QIV, it was cost-saving in around 60% of simulations in both sectors, and cost-effective in the remaining cases.

CONCLUSION

The implementation of HD-QIV not only offers substantial public health benefits by reducing severe influenza outcomes but also presents a cost-effective strategy compared to SD-TIV or SD-QIV.

Encouraging broader adoption of HD-QIV, especially in high-risk populations, could enhance healthcare resource allocation while achieving improved health outcomes.

This analysis was conducted before WHO recommended removing the Influenza B Yamagata lineage. However, the disease burden is unchanged, so the TIV and QIV comparison remains valid, and both vaccines are expected for the SH25 campaign in Argentina.

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CONTACT INFORMATION
Natalia Espinola: nespino@iecs.org.ar

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