Economic and Clinical Impact of Older Adult Vaccination with The Bivalent Respiratory Syncytial Virus Prefusion F (RSVpreF) Vaccine in Mexico

EE350

Veronica Guajardo[1], Robyn Kendall[2], Nishu Gaind[2], Luka Ivkovic[2], Rengina Kefalogianni[3], Diana Mendes[3]*

[1]Pfizer, Mexico City, Mexico; [2]Evidinno Outcomes Research Inc, Vancouver, BC, Canada; [3]Pfizer Ltd., Tadworth, Surrey, UK

**Rengina.Kefalogianni@pfizer.com*

OBJECTIVE

- Respiratory syncytial virus (RSV) is a common respiratory virus which can cause severe illness in the elderly and those with underlying conditions.[1]
- A novel RSV prefusion F (RSVpreF) vaccine has been approved in Mexico for older adults (≥60 years) for the prevention of RSV.[2]
- This study estimated the clinical and economic burden of RSV-lower respiratory tract infection (LRTI) among older adults in Mexico, with and without a year-round RSVpreF vaccination program.

METHODS

Model Overview

- A population-based Markov cohort model was used to project clinical and economic outcomes of RSV in older adults with single-dose RSVpreF vaccination compared to no vaccination, among all adults 60-99 years of age (n = 17,100,275).[3]
- Clinical outcomes included medically attended RSV stratified by care setting (i.e., hospital [H], emergency department [ED], or physician's office [PO]), deaths associated with RSV treated in-hospital, life years (LYs), and quality-adjusted life years (QALYs).
- Economic outcomes included intervention costs (comprised of RSVpreF vaccine) and direct medical care costs for older adults.

Estimation of Model Inputs

- Incidence of RSV-H (291 per 100,000 adults aged 60+) was estimated using data from a published analysis of respiratory hospitalization rates in Mexico;[4] incidence rates were allocated by risk, based on a recent study of adults in the United States (US).[5]
- Case-fatality rate ([CFR] of 8.6 deaths per 100 hospitalizations [65-74 years old]) for RSV-associated in-hospital mortality was based on a global systematic literature review on RSV burden in older adults from developed countries,[6] and distributed across age and risk groups based on published literature.[7]
- Vaccine effectiveness was derived from RENOIR clinical trial data[8] and duration of protection beyond trial was extrapolated assuming linear waning and truncated at 42 months.
- Vaccine uptake (58%) was derived from Mexico's 2023 National Health and Nutrition Survey data for influenza vaccination for adults over 60 years of age.[9]
- All costs were reported in 2025 US dollars (US$) and Mexican Pesos (MXN).
- Direct medical care costs were US$6,052 (MXN111,133) for RSV-H, US$210 (MXN3,857) for RSV-ED, and US$71 (MXN1,296) for RSV-PO.[10]
- Age-specific utility values were based on Mexico-specific publication,[11] and distributed across risk groups based on published literature.[12,13] Disutility due to RSV-H (0.0167) and RSV-ED/PO visit (0.0054) were captured from the published literature.[14,15]

Analyses

- Analyses were conducted from the healthcare system and societal perspectives with a lifetime time horizon.
- A 5% annual discount rate was applied for costs and outcomes.[16]
- Value-based price was calculated as the price at which RSVpreF (vs. no intervention) would be cost-effective based on a willingness-to-pay of US$14,158 (MXN259,159) per QALY gained, i.e., 1x gross domestic product per capita (GDPpc) in 2024.[17-19]
- Scenario analyses tested the results robustness to changes in key model inputs, including vaccine uptake (40% and 80%).

LIMITATIONS

- Some model parameters (e.g., RSV-attributable ED and PO rates) were derived from US data due to limited local evidence.
- Comorbidity-specific healthcare costs were assumed to be uniform across risk profiles owing to lack of reliable data.
- Downstream outcomes (e.g., post-discharge care, readmissions, chronic decline) were excluded, likely biasing results conservatively against RSVpreF.
- The potential benefits of reducing RSV-related hospitalizations (e.g., increased bed availability) were not captured.

RESULTS

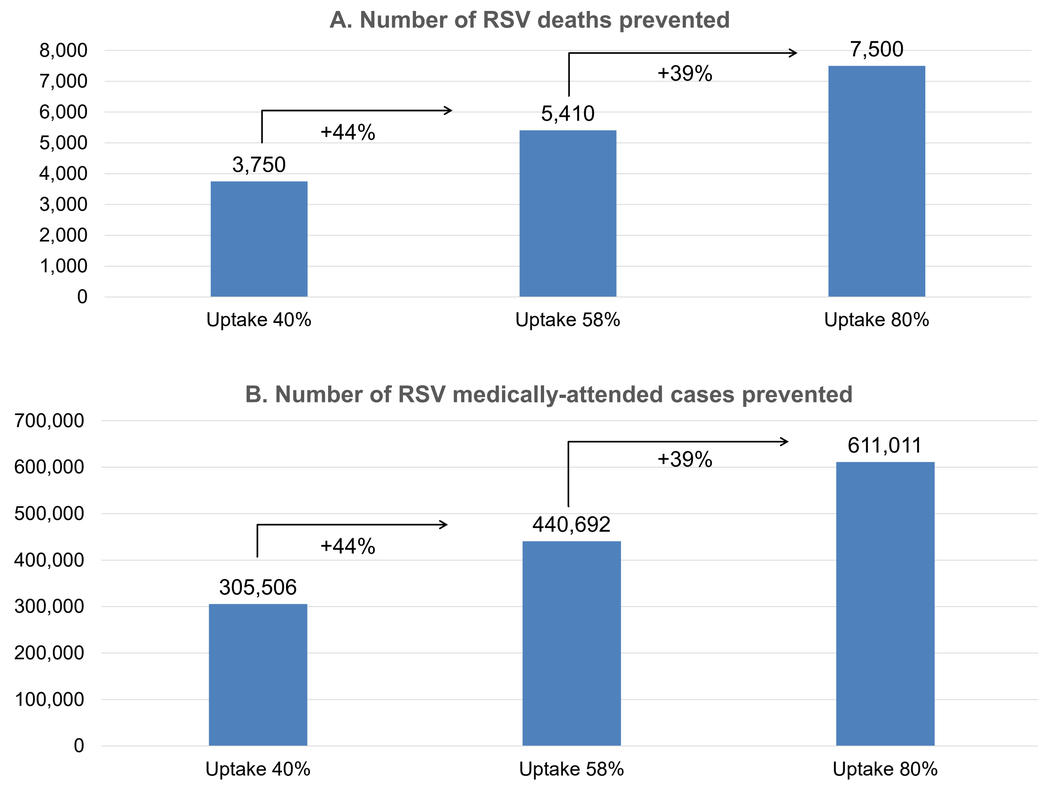
- Over the modelled cohort lifetime, RSV is estimated to cause over 1.2 million hospitalizations and 10 million PO visits in Mexico with an associated total direct medical care cost of US$4.8 billion (MXN88 billion).The total indirect cost estimated with no intervention was slightly over US$1 billion (MXN18.9 billion) over the cohort lifetime.
- Use of a single dose of RSVpreF vaccine among older adults at 58% uptake was projected to avert 66,548 RSV-H cases, 49,274 RSV-ED cases, 324,869 RSV-PO cases, and 5,410 RSV-related deaths.
- This resulted in a gain of 26,503 QALYs and cost savings of over US$400 million (MXN7.4 billion) in direct medical care and US$80.6 million (MXN1.5 billion) in indirect costs.
- From a healthcare system perspective, RSVpreF vaccination was cost-effective at US$76 (MXN1,387) per dose at US$14,158 per QALY gained.
- Accounting for indirect costs as well, the resulting incremental cost-effectiveness ratio (ICER) would decrease to US$11,093 (MXN202,297) per QALY gained (i.e., 0.8xGDPpc). From the societal perspective, RSVpreF vaccine would be cost-effective at a price of US$84 (MXN1,532) per dose.

Table 1. Base case results: RSVpreF vaccination vs. No intervention

	RSVpreF Vaccine	No Intervention	Difference
Clinical outcomes, No. of cases			
No. of cases			
RSV-H	1,133,981	1,200,529	-66,548
RSV-ED visits	869,161	918,435	-49,274
RSV-PO visits	10,004,309	10,329,178	-324,869
Total	12,007,451	12,448,143	-440,692
RSV-related deaths	105,772	111,181	-5,410
Life years, discounted	179,402,494	179,367,738	34,756
QALYs, discounted	141,115,915	141,089,412	26,503
Economic outcomes, US$ (MXN) billions			
Medical care	4.39 (80.60)	4.79 (87.95)	-0.40 (-7.35)
Vaccination	0.78 (14.22)	0 (0)	0.78 (14.22)
Total direct costs	5.16 (94.82)	4.79 (87.95)	0.38 (6.87)
Total indirect costs	0.95 (17.44)	1.03 (18.93)	-0.08 (-1.49)
Total costs (direct + indirect)	6.11 (112.26)	5.82 (106.88)	0.29 (5.38)
ICER, Cost per QALY gained US$ (MXN)			
Healthcare perspective			14,156 (259,158)
Societal perspective			11,093 (202,927)
ICER, Cost per LY gained US$ (MXN)			
Healthcare perspective			10,794 (197,615)
Societal perspective			8,459 (154,737)

- The number of prevented RSV medically-attended cases and RSV-related deaths for base case and vaccine uptake scenario analyses are presented in **Figure 1**. Both prevented RSV cases and RSV-related deaths increased with vaccine uptake.

Figure 1. Total number of RSV deaths (A) and medically-attended cases (B) prevented with different vaccine uptakes



REFERENCES

1. Amand et al. *BMC Health Serv Res*. 2018;18(1):294
2. Gobierno de México. 2024. Cofepris authorizes vaccines against respiratory syncytial virus (RSV) for use in pregnant women and older adults.
3. CONAPO. 2025. Population Projections.
4. Burkart et al. *eClinicalMedicine*. 2025; 85: 103292
5. Weycker et al. *Infect Dis Ther*. 2024;13(1):207-220
6. Nguyen-Van-Tam et al. *Eur Respir Rev*. 2022;31(166).
7. Averin et al. *Respir Med*. 2021;185:106476.
8. Walsh et al. *N Engl J Med*. 2023;388(16):1465-1477.
9. ENSANUT. 2023. National Continuous Health and Nutrition Survey 2023.
10. Instituto Mexicano de Seguro Social. 2025. Unit Costs by Level of Medical Care Updated to 2025.
11. Wasserman et al. *Hum Vaccin Immunother*. 2019;15(3):560-569.
12. Mendes et al. *Expert Rev Pharmacoecon Outcomes Res*. 2022;22(8):1285-1295.
13. Ara & Brazier. *Value Health*. 2011;14(4):539-545.
14. Falsey et al. *Influenza Other Respir Viruses*. 2022;16(1):79-89
15. Mao et al. *J Infect Dis*. 2022;226(Suppl 1):S87-S94
16. Gobierno de México. Guide for conducting economic evalutions.
17. World Bank.GDP per capita (current US$).
18. World Bank.GDP per capita (current LCU).
19. WHO. Macroeconomics and Health: Investing in Health for Economic Development.

CONCLUSION

- **Year-round RSVpreF vaccination among older adults is likely a cost-effective intervention in Mexico which would significantly reduce rates of severe infection, hospitalizations, and healthcare costs.**
- **Implementing RSVpreF vaccination as part of a national immunization program would optimize hospital resources and improve health outcomes among older adults in Mexico.**
- **These results support health policy decisions to prioritize RSV vaccination for vulnerable older populations, strengthening prevention efforts and health-related quality of life in Mexico.**

This study was sponsored by Pfizer Inc.