



# Public Health and Economic Impact of RSVpreF vaccination among Older Adults in Latin America and the Caribbean

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## INTRODUCTION

- Respiratory syncytial virus (RSV) is a common cause of acute respiratory illness. Older adults are at higher risk of RSV-associated morbidity and mortality<sup>1</sup>
- Literature on the RSV-associated public health burden in older adults in Latin America and the Caribbean is limited<sup>2,3</sup>
- A novel bivalent stabilized prefusion F subunit vaccine (RSVpreF) offers protection against RSV-associated illnesses in older adults<sup>4</sup> and can potentially help prevent a substantial public health and economic burden in the region

## OBJECTIVE

- To estimate the potential public health and economic impact of RSVpreF vaccination among adults aged  $\geq 60$  years in Argentina, Brazil, Chile, Mexico, the Central America and the Caribbean (CAC) and the Pan American Health Organization (PAHO) regions\*\*

## METHODS

### Model Overview

- A Markov model was used to estimate the public health and economic burden of RSV among adults aged  $\geq 60$  and the potential impact of introducing a single dose of RSVpreF compared to no vaccination in Argentina, Brazil, Chile, Mexico, the CAC and PAHO regions
- Public health outcomes consisted of medically-attended RSV stratified by care setting (i.e., hospital [RSV-H], emergency department [RSV-ED], physician's office [RSV-PO]) and RSV-related deaths (for hospital-admitted patients).
- Economic outcomes included direct medical care costs for older adults

### Model Parameters

- Age-specific incidence rates for RSV-H were sourced from a published analysis by Burkart et al. Country-specific respiratory-related RSV-H rates were used for Argentina, Brazil, Chile, and Mexico; Argentina and Mexico rates were used as proxies for PAHO and CAC respectively<sup>2</sup>. Incidence rates were expressed per 100,000 cases
- Incidence rates were stratified by risk level, distinguishing between low-risk (healthy adults) and high-risk ( $\geq 1$  comorbidity), based on a study of adults in the US<sup>5</sup>
- RSV-ED and RSV-PO rates for Brazil, Mexico, and CAC were derived by applying the incidence rate ratios between RSV-H and RSV-ED/PO reported for the US<sup>6</sup>. RSV-ED/PO rates for Chile were based on a systematic review of high-income countries, while for Argentina country-specific data was available in the literature<sup>7,8</sup>
- Case-fatality rates (CFR) for RSV-associated in-hospital mortality in Brazil, Mexico and CAC were based on a global systematic literature review on RSV burden in older adults from developed countries<sup>9</sup>. Local studies informed CFRs for Chile and Argentina; Argentina's data were used as a proxy for PAHO<sup>10,7</sup>. Age and risk group distributions were applied based on a US study<sup>11</sup>. CFR were expressed per 100 cases
- General mortality rates were obtained from national sources. For CAC, Mexico was used as a proxy, and for PAHO, Argentina served as the proxy<sup>12,13,14,15</sup>
- Vaccine effectiveness (VE) was derived from RENOIR clinical trial data<sup>4</sup> and duration of protection beyond trial was extrapolated assuming linear waning and truncated at 42 months
- Vaccine uptake was derived from existing national influenza vaccination programmes, which report coverage rates ranging from 44% to 93% in the adult population
- Medical Costs of RSV-H, RSV-ED and RSV-PO for Argentina, Brazil, and PAHO were based on pneumonia costs from an Argentinian cost-effectiveness study<sup>16</sup>. Chilean costs were sourced from the DRG public payer database, and Mexican costs were derived from the Mexican Social Security Institute (IMSS)<sup>17,18</sup>. Costa Rica's public sector RSV-H, ED and PO costs served as a proxy for other countries in CAC<sup>19,20</sup>. All costs were reported in 2025 US dollars (\$)

### Analyses

- An annual discount rate of 3% was applied for both future costs and outcomes
- Analyses adopted the healthcare system perspective with a lifetime time horizon

## RESULTS

**Table 1: Public Health Burden (in absolute numbers) of RSV Among Older Adults and the Projected Impact of RSVpreF Vaccination in Argentina, Brazil, Chile, Mexico, the CAC and the PAHO regions**

	No Intervention	RSVpreF	Difference
<b>Hospitalisations</b>			
PAHO	6,691,573	6,262,938	428,635
CAC	1,642,171	1,580,192	61,979
Brazil	2,359,240	2,177,297	181,943
Mexico	1,185,801	1,120,122	65,679
Argentina	109,858	104,327	5,531
Chile	64,440	59,196	5,244
<b>Emergency Department and Physician's Office visits</b>			
PAHO	100,502,812	96,013,753	4,489,059
CAC	19,280,222	18,857,503	422,719
Brazil	23,381,498	22,278,234	1,103,264
Mexico	11,762,722	11,385,256	377,466
Argentina	3,299,359	3,176,007	123,352
Chile	3,219,457	3,027,674	191,783
<b>Deaths</b>			
PAHO	828,756	785,081	43,675
CAC	218,177	211,577	6,620
Brazil	300,791	281,850	18,941
Mexico	157,560	150,207	7,353
Argentina	10,810	10,346	464
Chile	9,279	8,663	616

- RSV is projected to cause approximately 25.7 million medically-attended cases among older adults in Brazil, 12.9 million in Mexico, 3.4 million in Argentina, and 3.2 million in Chile over the cohort's lifetime. A single dose of RSVpreF vaccination is estimated to prevent 2 million cases across these countries
- In the CAC region, RSV is estimated to cause 20.9 million cases, and 107.2 million cases in the PAHO region over the cohort's lifetime. Vaccination with RSVpreF is projected to prevent approximately 484,698 and 4.9 million cases in these regions, respectively
- RSV is projected to cause 712,102 deaths across Brazil, Mexico, Argentina, and Chile, with the potential to avert 39,965 deaths through RSVpreF vaccination. In the PAHO and CAC regions, RSV is estimated to cause 828,756 and 218,177 deaths, respectively, with no vaccination potentially preventing 43,675 and 6,620 deaths, respectively

**Table 2: Economic Burden of RSV Among Older Adults and the Projected Impact of RSVpreF Vaccination in Argentina, Brazil, Chile, Mexico, the CAC and the PAHO regions**

	No Intervention	RSVpreF	Difference
<b>Direct Medical Costs (Millions)</b>			
PAHO	20,222	18,672	1,550
CAC	9,528	8,955	573
Brazil	3,384	3,072	312
Mexico	4,322	3,960	362
Argentina	208	194	14
Chile	251	224	27

- RSV is projected to incur approximately US\$8.06 billion in direct medical costs across Brazil, Mexico, Argentina, and Chile over the cohort's lifetime. RSVpreF vaccination could avert an estimated US\$712 million in costs across these countries
- In the PAHO and CAC regions, RSV is expected to result in US\$20.22 billion and US\$9.53 billion in direct medical costs, respectively, with RSVpreF vaccination projected to save US\$1.55 billion and US\$573 million, respectively

## LIMITATIONS

- RSVpreF duration of protection beyond trial data was extrapolated assuming linear waning and truncated at 42 months which may be conservative
- VE against RSV-H was based on medically-attended RSV-LRTI with  $\geq 3$  symptoms due to limited hospitalization data in RENOIR
- Limited specific local data on all the outcome were available; where not, regional or global inputs were sourced from existing international literature
- Downstream outcomes (e.g., post-discharge care, readmissions, chronic decline) were excluded, likely biasing results conservatively against RSVpreF

## CONCLUSION

- RSV places a substantial public health and economic burden on older adults in Latin America and the Caribbean
- Vaccination with RSVpreF is anticipated to reduce this burden by preventing a large number of medically-attended cases and deaths while lowering medical expenditures

## REFERENCES

- \*\*The PAHO region includes 35 Member States across North, Central, South America, as well as the Caribbean. This analysis included all member states excluding the United States and Canada 1. Falsey et al. *N Engl J Med*. 2005;352(17):1749-1759 2. Burkart et al. 2025 *eClinicalMedicine* 3. Ciapponi et al. *Front Public Health*. 2024;12:1377968 4. Walsh et al. *Clin Infect Dis*. 2025 Feb 5. Weycker et al. *Infect Dis Ther*. 2024;13(1):207-220 6. McLaughlin et al. 2022 *Infect Dis* 7. Li et al. *ID Week* 2024 8. Rey-Ares et al, ISPOR EU poster 2024 9. Nguyen et al. *Eur Respir Rev*. 2022;31(166). 10. Luchsinger et al. *Thorax* 2013;68:1000–1006 11. Averin et al. *Respir Med*. 2021;185:106476 12. United Nations (UN) 13. Instituto Nacional de Estadísticas, Chile 14. NDEC Argentina 15. INEGI Mexico 16. Rey-Ares et al. *Infect Dis Ther* 13, 1235–1251 (2024) 17. FONASA 2024 Report 18. Mexican Social Security Institute (IMSS) 2024 Report 19. CSS. Dirección Financiera Contable - Área de Contabilidad de Costos. Modelo Tarifario Seguro de Salud, I Semestre 2025. 20. CCSS- ASALUD-0014-2025. Oficio de asesoría sobre la gestión de planificación táctica-operativa de la Gerencia Médica referente a los servicios de hospitalización. 20-Feb-2025.